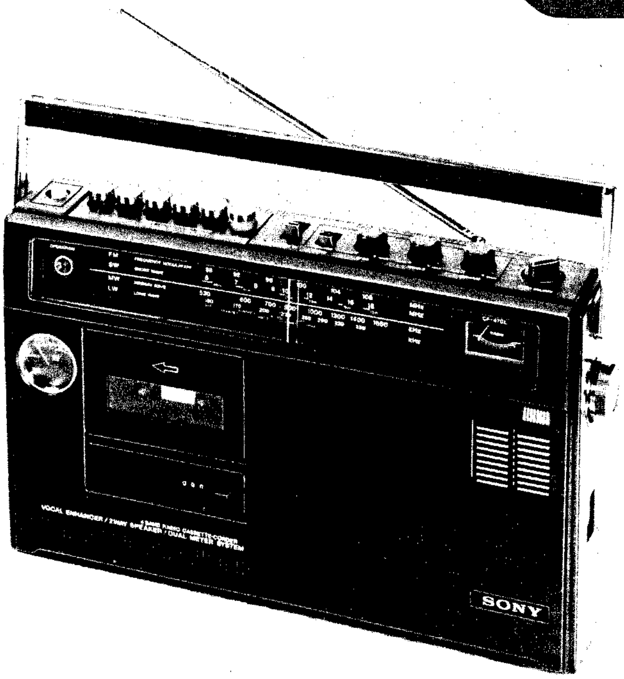
CF-470L

AEP Model



FM/SW/MW/LW CASSETTE-CORDER

SPECIFICATIONS

GENERAL

Power Requirements:	110, 127, 220, or 240V ac adjustable, 50/60Hz 6V dc, four batteries size "D" (IEC Designation R20) or 12V car battery with Sony Car Battery Cord DCC-129 (optional)
Power Consumption:	10W ac
Power Output:	4W (max.)
Speakers:	2-way speaker 16 cm (6½ inches) dia. (woofer) 5 cm (2 inches) dia. (tweeter)
Dimensions:	Approx. 412 (w) x 265 (h) x 110 (d) mm 16¼ (w) x 10½ (h) x 4⅜ (d) inches including projecting parts and controls not including handle
Weight:	Approx. 4.5kg, 9 lb 15 oz including batteries

RADIO SECTION

Frequency Range:	FM 87.5 – 108MHz SW 6 – 18MHz (50 – 16.7m) MW 530 – 1,605kHz (566 – 187m) LW 150 – 350kHz (2,000 – 857m)
Antennas:	FM/SW: Telescopic antenna MW/LW: Built-in ferrite-rod antenna

TAPE RECORDER SECTION

Recording System:	2-track 1-channel monaural
Fast Winding Time:	Approx. 2 min. with Sony Cassette C-60
Frequency Response:	50 – 10,000Hz
Inputs:	MIC . . . 1 (minijack) sensitivity 0.2mV (–72dB) for low impedance microphone LINE . . . 1 (minijack) sensitivity 0.14V (–15 dB) input impedance 100k ohms
Output:	EARPHONE . . . 1 (minijack) 8-ohm earphone or load impedance 10k ohms or higher
Other Jacks:	REC/PB . . . . . 1 (5-pin DIN jack) REMOTE 1
Battery Life:	Approx. 10 hours of continuous recording from the Built-in Microphone with Sony Super Batteries size "D"

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

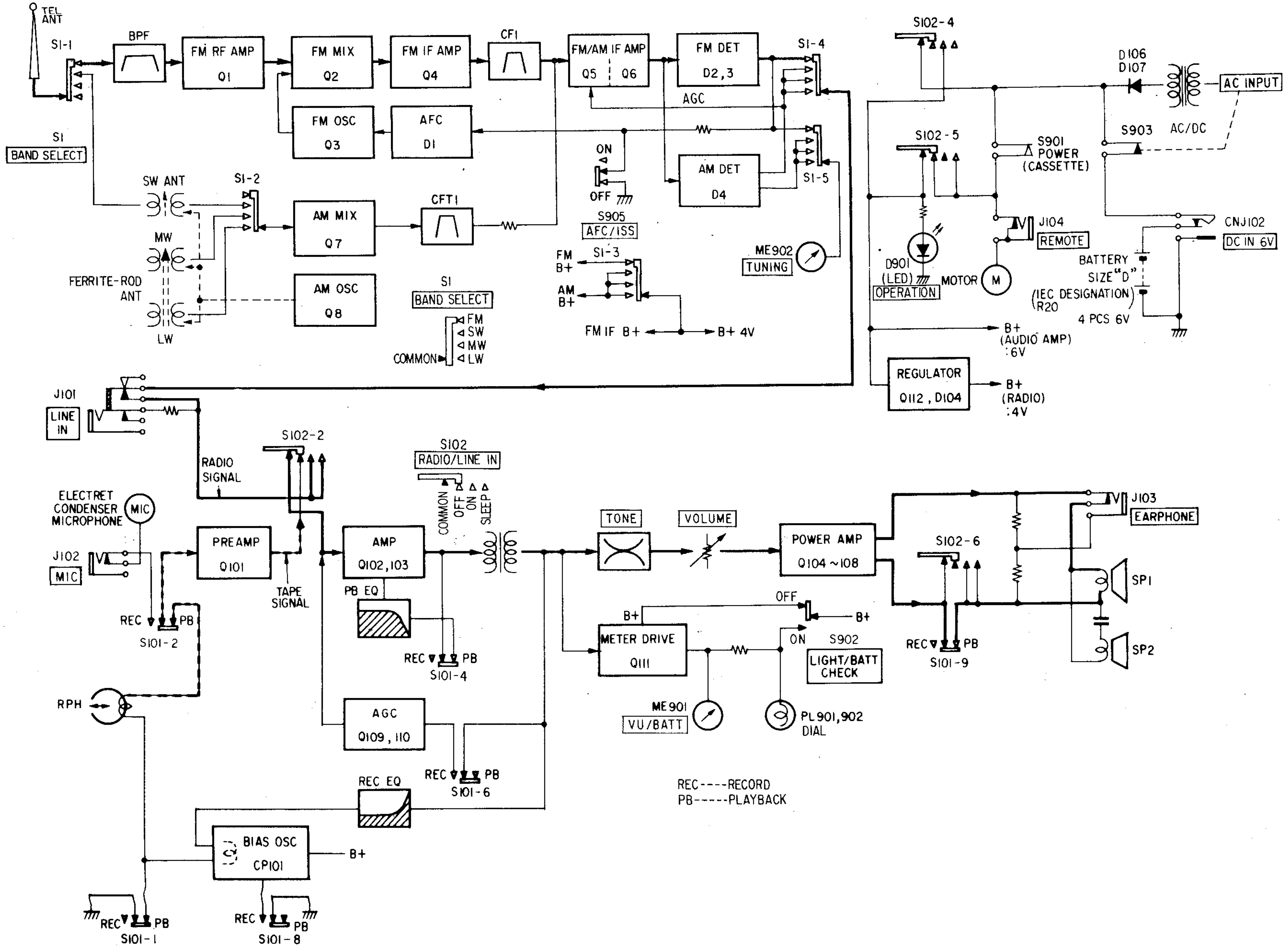
SONY®

SERVICE MANUAL

667

SECTION 1

BLOCK DIAGRAM


TEL ANT
S1-1
S1
BAND SELECT
BPF
FM RF AMP
Q1
FM MIX
Q2
FM IF AMP
Q4
CF1
FM/AM IF AMP
Q5
Q6
FM DET
D2,3
S1-4
AGC
FM OSC
Q3
AFC
D1
ON
OFF
S905
AFC/ISS
AM DET
D4
S1-5
SW ANT
S1-2
MW
FERRITE-ROD ANT
LW
AM MIX
Q7
CFT1
AM OSC
Q8
S1
BAND SELECT
FM
SW
MW
LW
COMMON
FM B+
S1-3
AM B+
FM IF B+
B+ 4V
ME902
TUNING
S102-4
D106
D107
AC INPUT
S102-5
S901
POWER
(CASSETTE)
S903
AC/DC
J104
REMOTE
D901
(LED)
OPERATION
MOTOR
M
CNJ102
DC IN 6V
BATTERY
SIZE "D"
(IEC DESIGNATION R20)
4 PCS 6V
B+
(AUDIO AMP)
:6V
REGULATOR
Q112, D104
B+
(RADIO)
:4V
J101
LINE IN
RADIO SIGNAL
S102-2
S102
RADIO/LINE IN
COMMON
OFF
ON
SLEEP
ELECTRET CONDENSER MICROPHONE
MIC
J102
MIC
PREAMP
Q101
TAPE SIGNAL
AMP
Q102, 103
PB EQ
REC
PB
S101-2
REC
PB
S101-4
TONE
VOLUME
POWER AMP
Q104~108
J103
EARPHONE
S102-6
SP1
SP2
REC
PB
S101-9
B+
OFF
B+
ON
S902
LIGHT/BATT CHECK
METER DRIVE
Q111
ME901
VU/BATT
PL901,902
DIAL
RPH
AGC
Q109, 110
REC
PB
S101-6
REC EQ
BIAS OSC
CP101
B+
REC
PB
S101-1
REC
PB
S101-8

REC----RECORD
PB-----PLAYBACK

SECTION 2

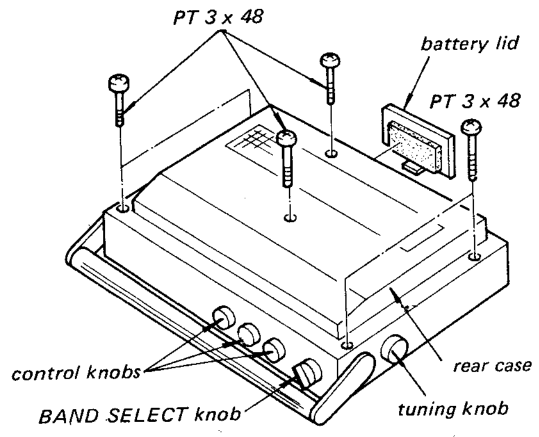
DISASSEMBLY AND REPLACEMENT

Rear Case and Front Case

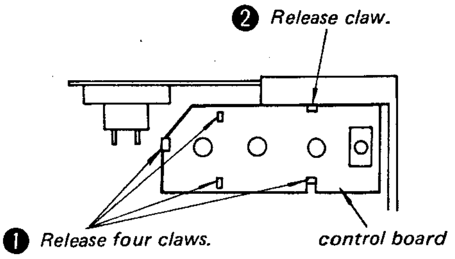
Rear Cover: Remove battery lid, batteries and six screws (PT 3 x 48).

Front Case: Depress EJECT button and open the cassette lid. Pull five knobs off.

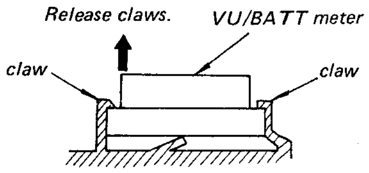
Note: When reattaching the front case, turn the tuning shaft fully clockwise to place the dial pointer at the right-most position.


PT 3 x 48
battery lid
PT 3 x 48
control knobs
BAND SELECT knob
rear case
tuning knob

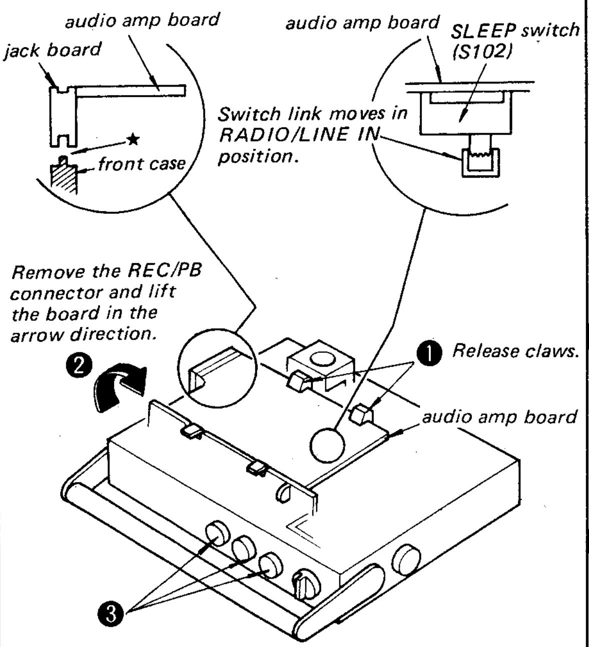
Control Board


❷ Release claw.
❶ Release four claws.
control board

VU/BATT Meter

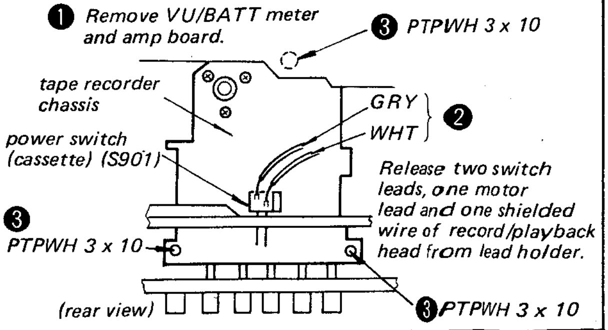

Release claws.
VU/BATT meter
claw
claw

Audio Amp Board


audio amp board
jack board
★
front case
audio amp board
SLEEP switch (S102)
Switch link moves in RADIO/LINE IN position.
Remove the REC/PB connector and lift the board in the arrow direction.
❷
❶ Release claws.
audio amp board
❸

Note: When reattaching the audio amp board, position the switch link to catch the SLEEP switch knob, and engage the jack board with the front case properly (shown with mark ★).

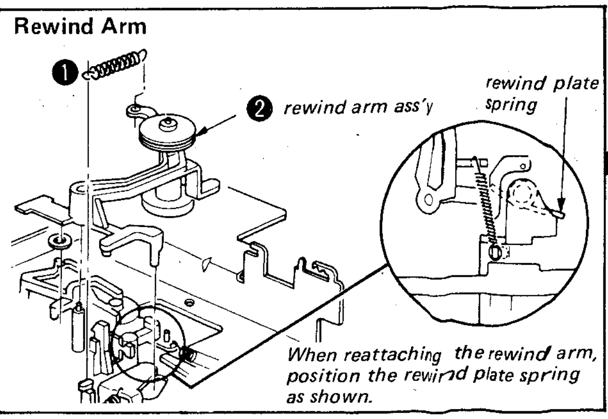
Tape Recorder Chassis


❶ Remove VU/BATT meter and amp board.
❸ PTPWH 3 x 10
tape recorder chassis
GRY
WHT
❷
power switch (cassette) (S901)
Release two switch leads, one motor lead and one shielded wire of record/playback head from lead holder.
❸
PTPWH 3 x 10
(rear view)
❸ PTPWH 3 x 10

Drive Belt

Flywheel

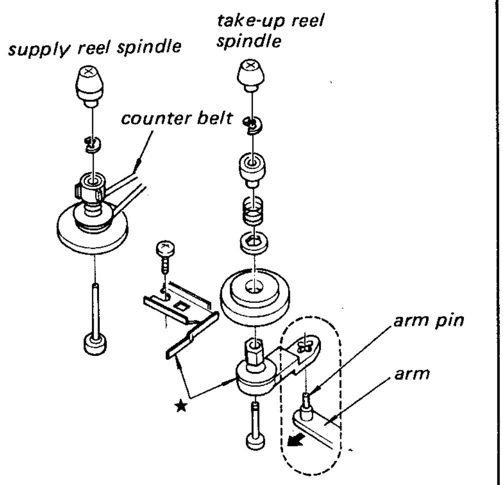
Rewind Arm


❶
❷ rewind arm ass'y
rewind plate spring

When reattaching the rewind arm, position the rewind plate spring as shown.

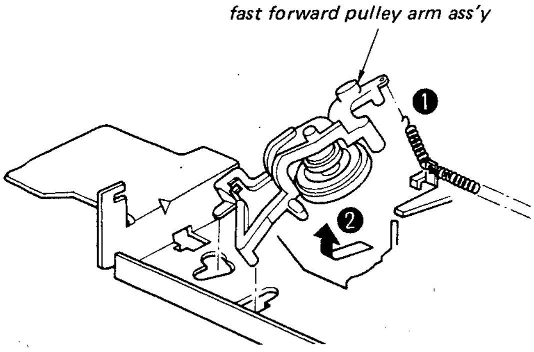
Reel Spindles

Parts shown by ★ touch each other. Remove the left-side brake simultaneously.

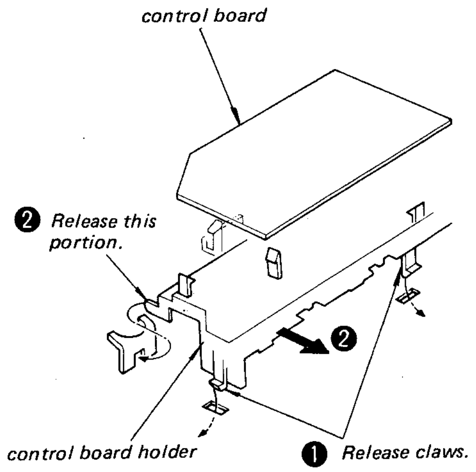

take-up reel spindle
supply reel spindle
counter belt
arm pin
arm
★

Note: When reattaching, insert the arm pin in the hole of the take-up reel spindle by pushing it to the arrowed direction while turning the supply reel spindle by hand.

Fast Forward Pulley Arm

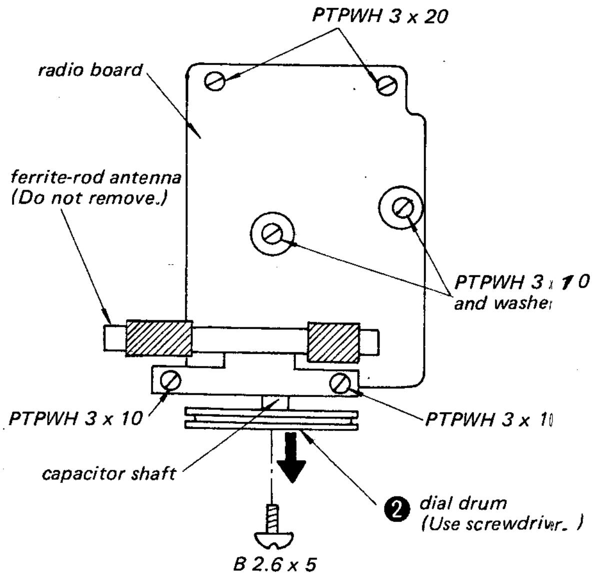

fast forward pulley arm ass'y
❶
❷

Control Board Holder


control board
❷ Release this portion.
❷
control board holder
❶ Release claws.

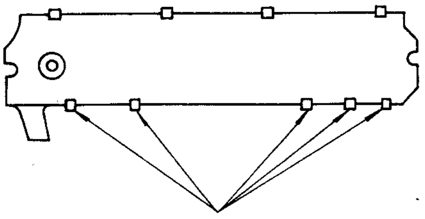
Radio Board

❶ *Remove seven screws.*


PTPWH 3 x 20
radio board
ferrite-rod antenna (Do not remove.)
PTPWH 3 x 10 and washe
PTPWH 3 x 10
PTPWH 3 x 1
capacitor shaft
❷ dial drum (Use screwdriver.)
B 2.6 x 5

Note: When reattaching the radio board, push the board toward the ferrite-rod antenna side to ensure the BAND switch operation and fasten the screws.

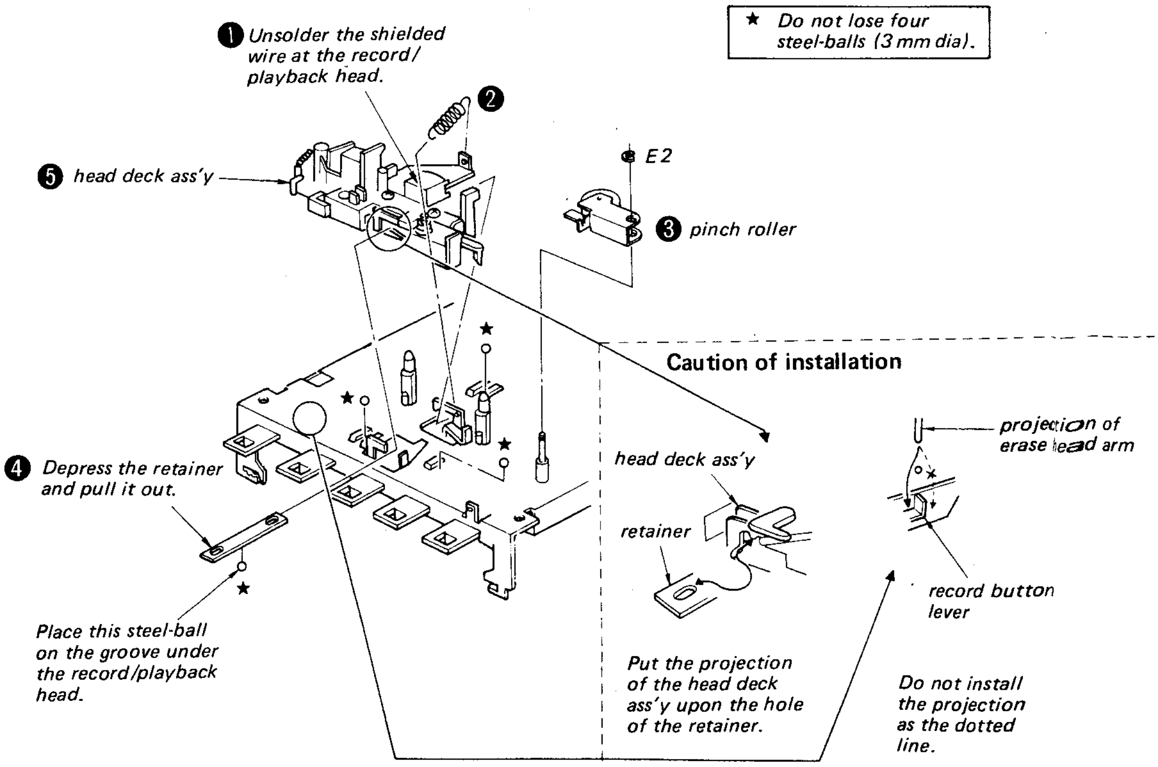
Dial Scale



Release claws.

Dial Cord Stringing

Head Deck



★ Do not lose four steel-balls (3 mm dia).

❶ Unsolder the shielded wire at the record/playback head.

❷

E2

❸ pinch roller

❹ Depress the retainer and pull it out.

❺ head deck ass'y

Place this steel-ball on the groove under the record/playback head.

Caution of installation

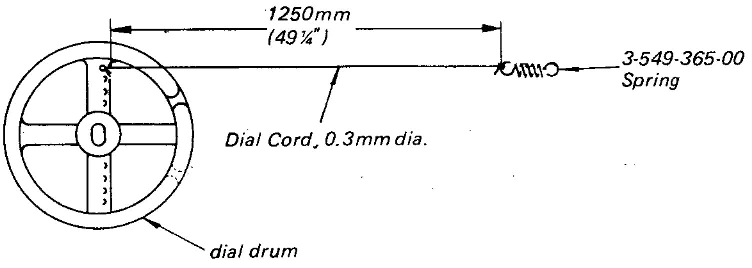
head deck ass'y
retainer
projection of erase head arm
record button lever

Put the projection of the head deck ass'y upon the hole of the retainer.

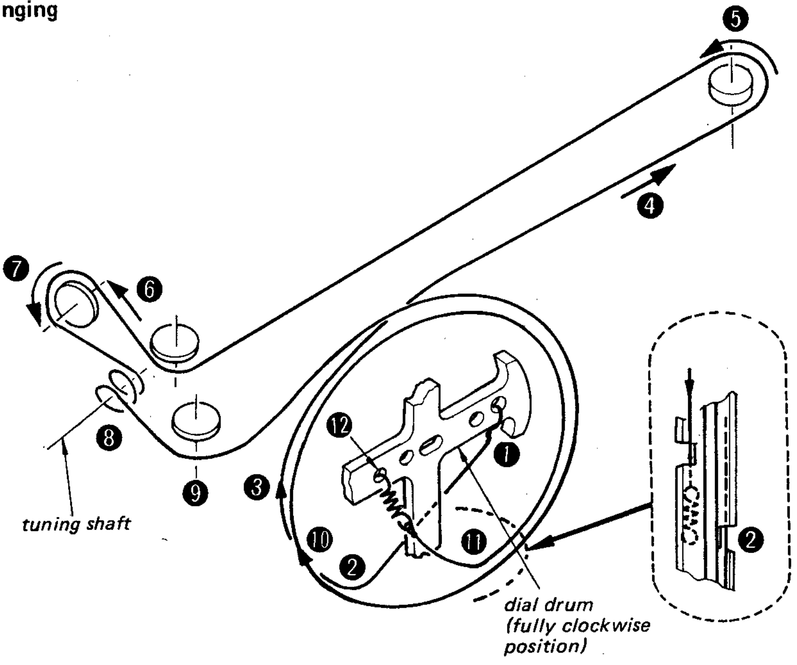
Do not install the projection as the dotted line.

2-2. DIAL CORD STRINGING

1) Dial Cord Preparation

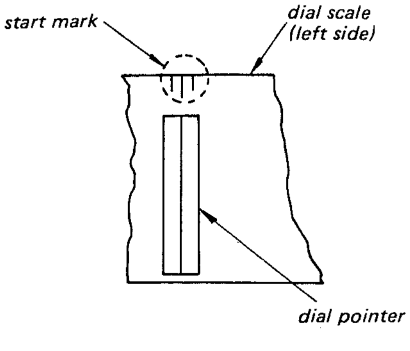

1250mm
(49¼")
3-549-365-00
Spring
Dial Cord, 0.3mm dia.
dial drum

2) Dial Cord Stringing


❺
❹
❼
❻
❽
tuning shaft
❾
❸
⓬
❶
❿
❷
⓫
❷
dial drum
(fully clockwise
position)

3) Dial Pointer Setting

Slide the dial pointer and set it to the center line of the start mark.


start mark
dial scale
(left side)
dial pointer

SECTION 3

ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	

2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

3-1. TAPE RECORDER SECTION

1) Mechanical Adjustments

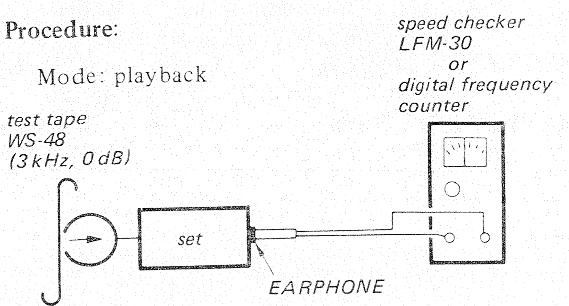
Tape Speed Adjustment

Setting:

VOLUME control: mechanical mid
Power source: 6 V dc

Procedure:

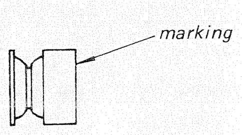
Mode: playback


speed checker
LFM-30
or
digital frequency
counter
test tape
WS-48
(3 kHz, 0 dB)
set
EARPHONE

Specification:

Speed checker	Digital frequency counter
−2.5%, +3%	2,925 – 3,090 Hz

If necessary, replace the motor pulley.



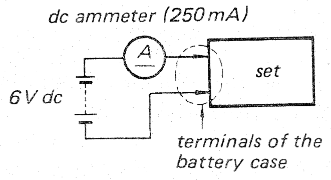
Motor pulley Part No.	Marking	Tape speed change
3-701-813-07	P	down
3-701-813-08	Q, R	↕
3-701-813-09	S, T	up

Note: Perform the motor pulley height adjustment.

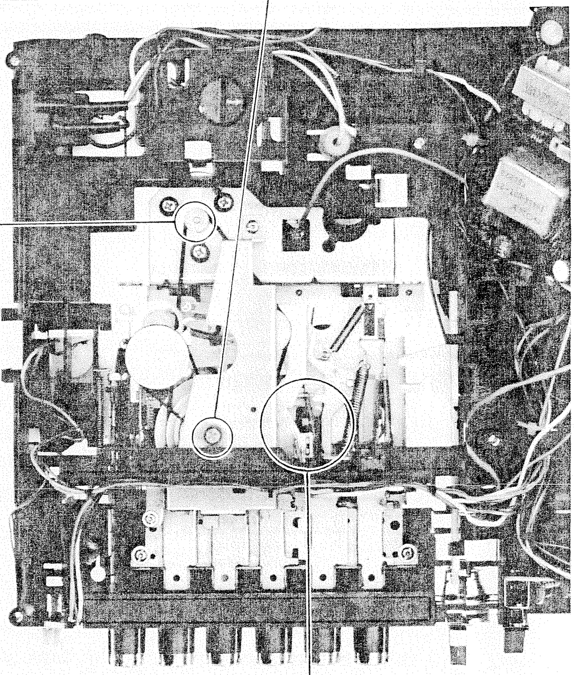
Flywheel Thrust Play Adjustment

Procedure:

1. Mode: playback


dc ammeter (250 mA)
A
6 V dc
set
terminals of the
battery case

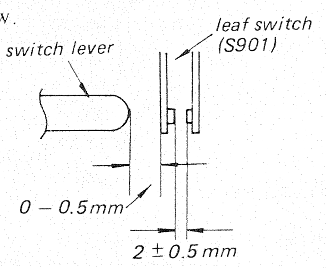
2. Turn the screw counterclockwise until the screw tip is detached from the flywheel shaft.
3. Gradually turn the screw clockwise to the position where the motor current suddenly increases.
4. Then, turn the screw counterclockwise about ¼ turn from the position obtained in step 3.



Leaf Switch (S901) Position Adjustment

– Stop Mode –

Adjust the leafs of switch to obtain the clearance shown below.

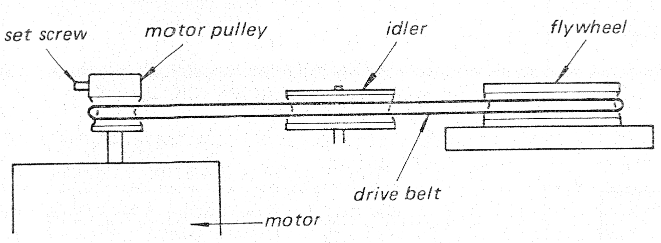

switch lever
leaf switch
(S901)
0 – 0.5 mm
2 ± 0.5 mm

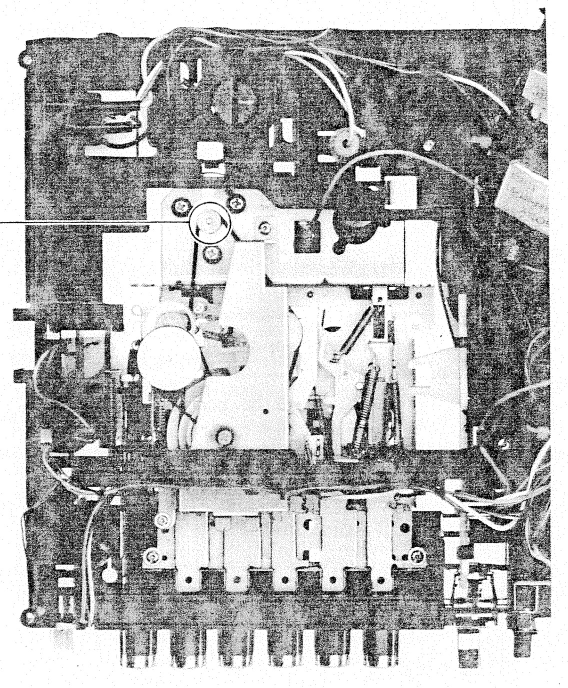
Motor Pulley Height Adjustment

After replacing the motor pulley or the flywheel, this adjustment should be performed.

Procedure:

1. Keep the set horizontal.
2. Adjust the motor pulley height so that the drive belt is straight without twist.


set screw
motor pulley
idler
flywheel
drive belt
motor



Rewind Torque Measurement

Torque meter	Torque
CQ-201A	55 – 100g·cm (0.77 – 1.4 oz·inch)

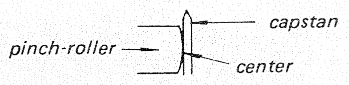
Forward and Fast Forward Torque Measurements

	Torque meter	Torque
Forward	CQ-101A, CQ-102A, CQ-103A	22.5 – 55g·cm (0.35 – 0.77 oz·inch)
Fast Forward	CQ-201A	55 – 100g·cm (0.77 – 1.4 oz·inch)

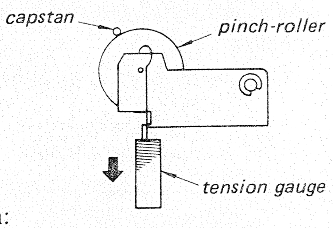
Pinch Roller Pressure Measurement

– Playback Mode –

1. Depressing the forward button slowly, confirm the center of the pinch-roller to touch the capstan at first.

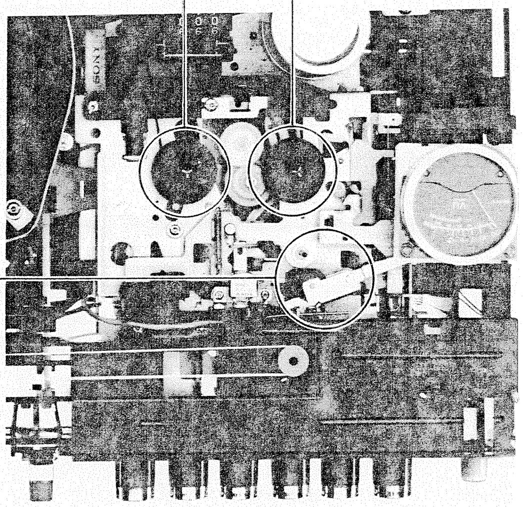

capstan
pinch-roller
center

2. Pull the pinch roller away from the capstan using a tension gauge as shown by the arrow. Make the pinch roller return to the capstan slowly. The pressure should be measured at the point where the pinch roller just contacts the capstan.


capstan
pinch-roller
tension gauge

Specification:

290 – 370 g (10 – 13 oz)



2) ELECTRICAL ADJUSTMENTS

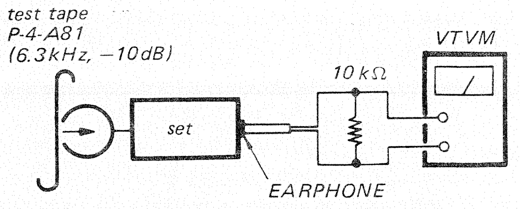
Record/Playback Head Azimuth Adjustment

Setting:

VOLUME control: mechanical mid

Procedure:

1. Mode: playback

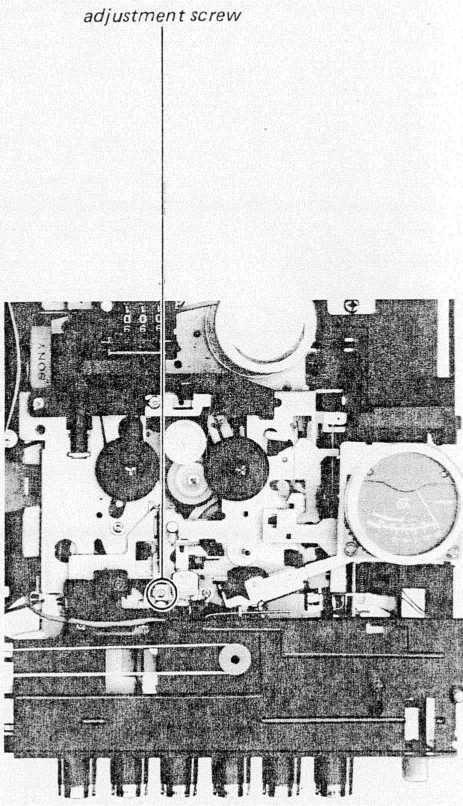

test tape
P-4-A81
(6.3kHz, −10dB)
VTVM
10 kΩ
set
EARPHONE

2. Turn the adjustment screw for the highest VTVM reading.

   Note: Several peak may appear, take the highest.

3. Apply a suitable locking compound to the adjusted screw.

Adjustment Location:

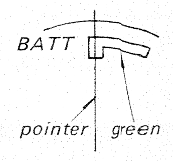

adjustment screw

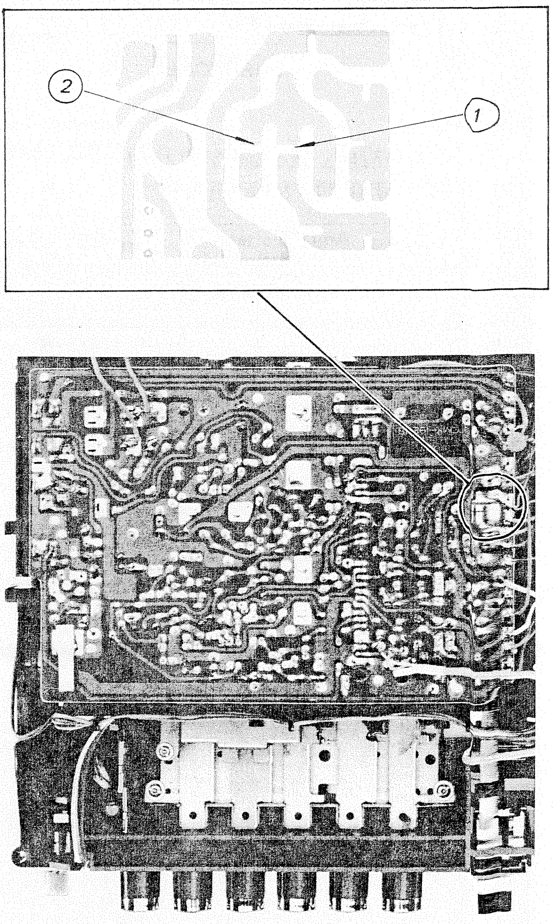
Battery Meter Calibration

Setting:

Power supply voltage:	4.4 V dc
VOLUME control:	minimum
RADIO switch:	OFF
Mode:	playback with no cassette installed
LIGHT/BATT CHECK button:	pressed

Adjustment Location and Specification:

Pattern Connection	Pointer deflection	Meter indication
①	up	 BATT pointer green
②	down	



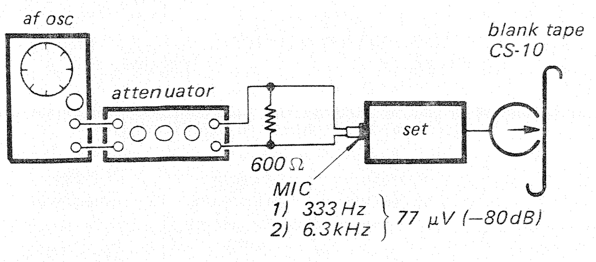
Record Bias Adjustment

Setting:

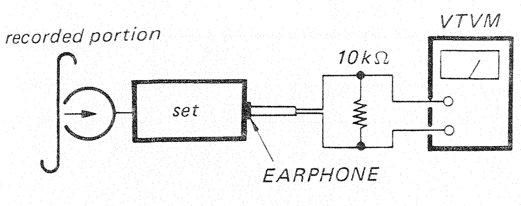
BASS, TREBLE controls: MAX
RADIO switch: OFF

Procedure:

1. Mode: record


af osc
attenuator
600Ω
MIC
1) 333 Hz
2) 6.3kHz
77 µV (−80dB)
set
blank tape
CS-10

2. Mode: playback


recorded portion
set
10kΩ
VTVM
EARPHONE

Playback 333 Hz. Adjust VOLUME control for 0.25 V (−10 dB) VTVM reading.

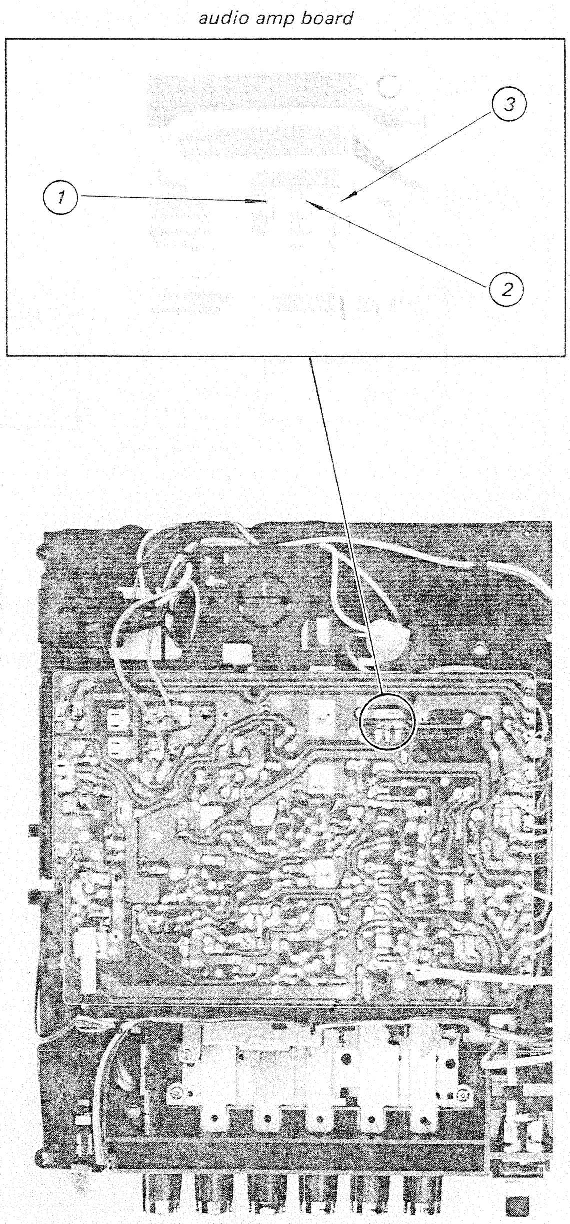
3.

Playback	Adjust pattern connection	VTVM reading
6.3 kHz	①, ②, ③	0.47 V (−4.5 dB)

Pattern connection	6.3kHz VTVM reading
①	down
②	↕
③	up

4. If necessary, repeat above steps.

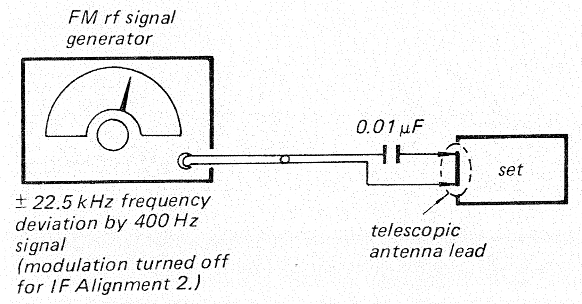
Adjustment Location:

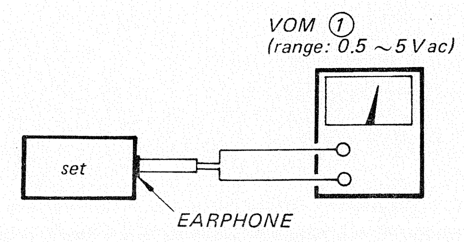

audio amp board
①
②
③

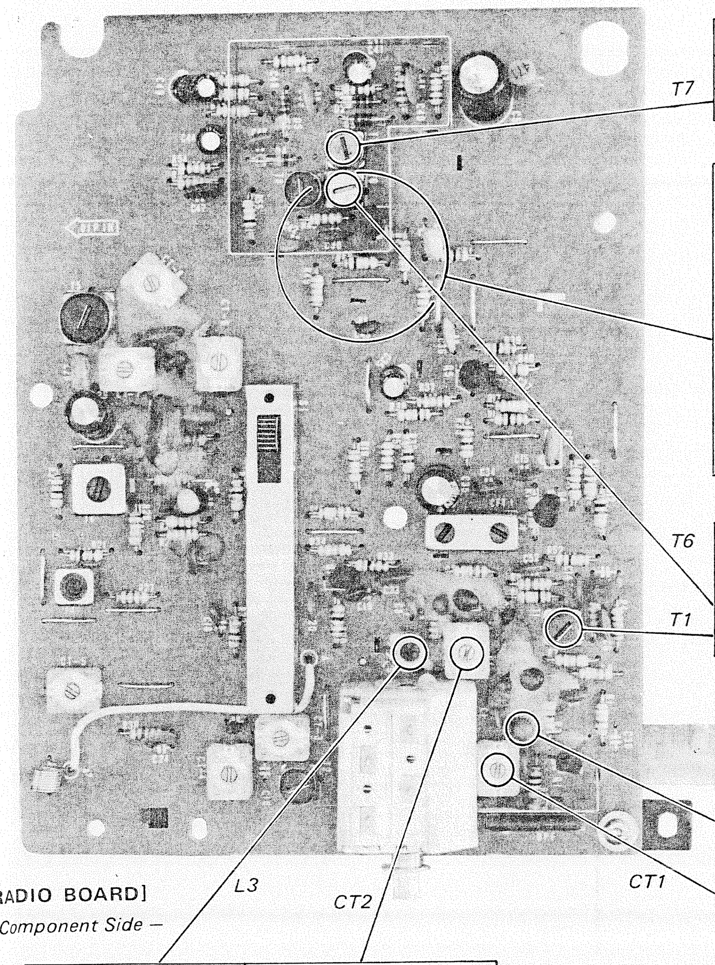
3-2. RADIO SECTION

1) FM SECTION

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

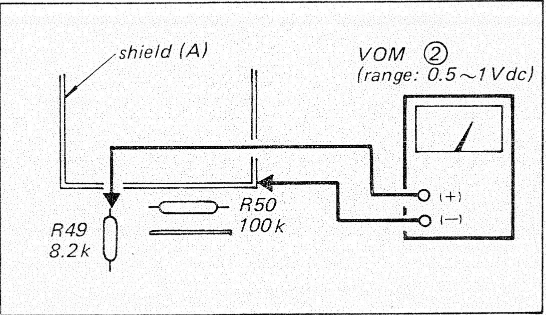

FM rf signal generator
0.01 μF
set
± 22.5 kHz frequency deviation by 400 Hz signal (modulation turned off for IF Alignment 2.)
telescopic antenna lead


VOM ①
(range: 0.5 ~ 5 V ac)
set
EARPHONE


T7
T6
T1
L2
CT1
L3
CT2

[RADIO BOARD]
— Component Side —

FM IF ALIGNMENT 2 (10.7MHz with no modulation)
Adjust for 0V reading on VOM ②.
T7


shield (A)
VOM ②
(range: 0.5 ~ 1 V dc)
(+)
(–)
R49
8.2k
R50
100k

FM IF ALIGNMENT 1 (10.7MHz with modulation)
Adjust for a maximum reading on VOM ①.
T6
T1

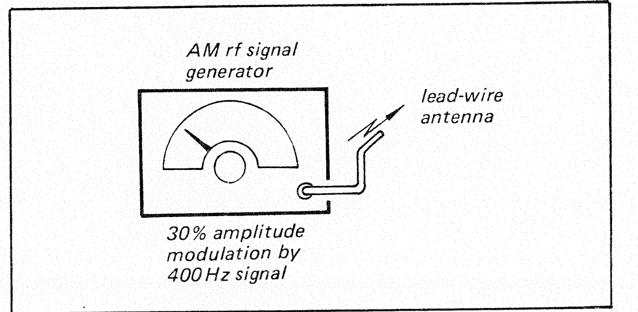
L3	CT2
87.1MHz	108.5MHz
Adjust for a maximum reading on VOM ①.	
FM FREQUENCY COVERAGE ADJUSTMENT	

CT1	L2
108.5MHz	87.1MHz
Adjust for a maximum reading on VOM ①.	
FM TRACKING ADJUSTMENT	

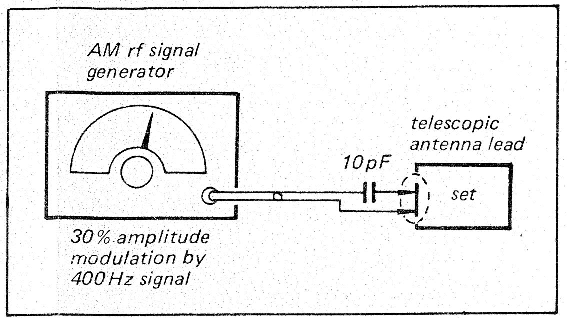
2) AM SECTION

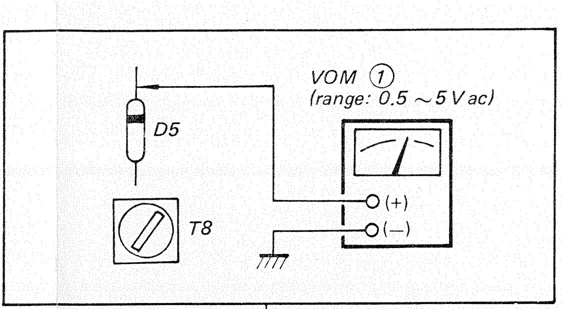
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

For MW, LW Adjustments


AM rf signal generator
lead-wire antenna
30% amplitude modulation by 400 Hz signal

For SW Adjustments

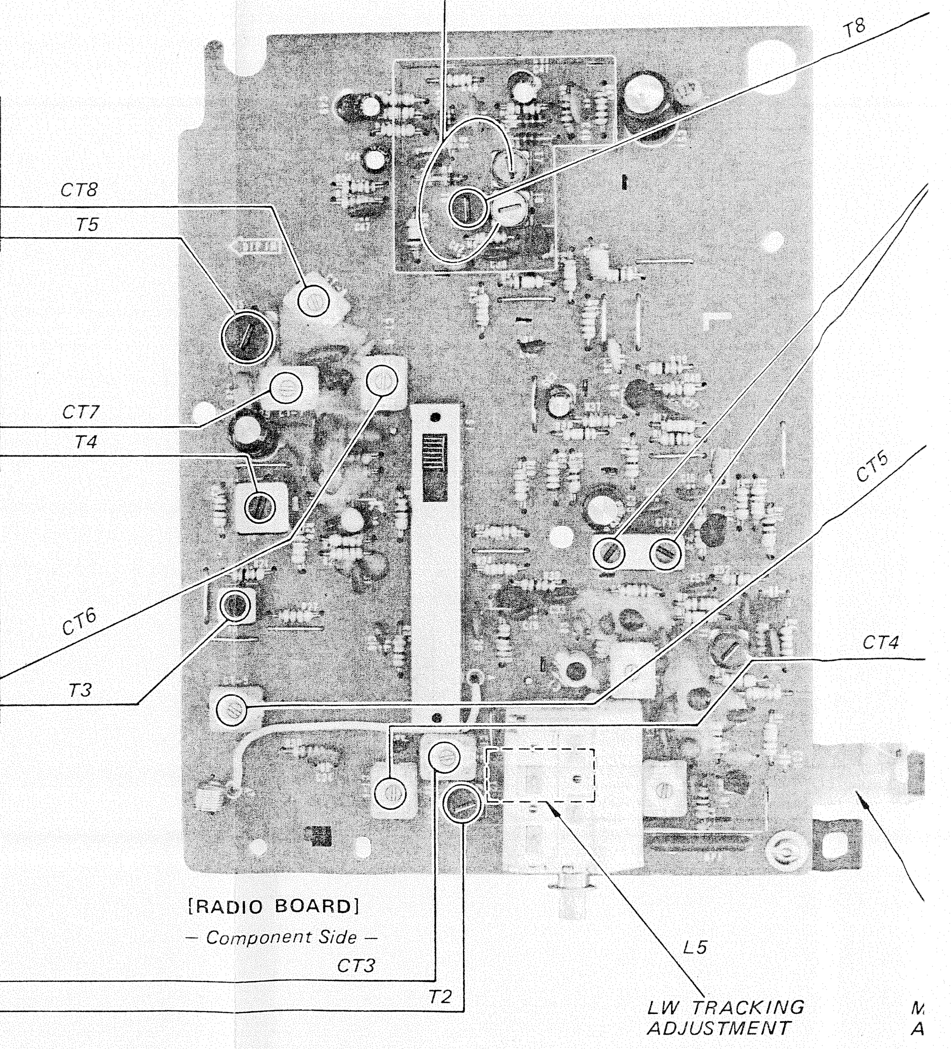

AM rf signal generator
telescopic antenna lead
10 pF
set
30% amplitude modulation by 400 Hz signal


D5
T8
VOM ①
(range: 0.5 ~ 5 V ac)
(+)
(–)

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
365kHz	CT8
145kHz	T5

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
1680kHz	CT7
520kHz	T4

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
18.4MHz	CT6
5.8MHz	T3


T8
CT8
T5
CT7
T4
CT5
CT6
T3
CT4
CT3
T2
L5
LW TRACKING ADJUSTMENT

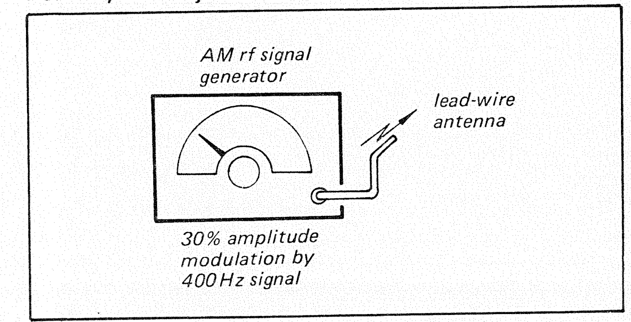
[RADIO BOARD]
— Component Side —

SW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
18.4MHz	CT3
5.8MHz	T2

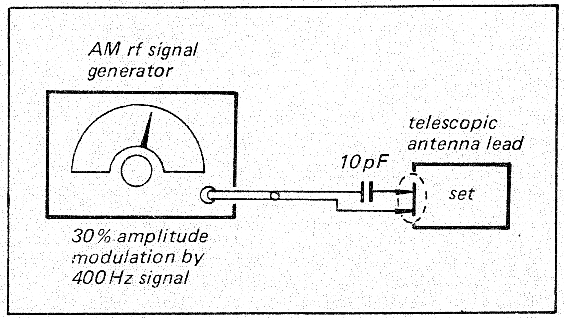
2) AM SECTION

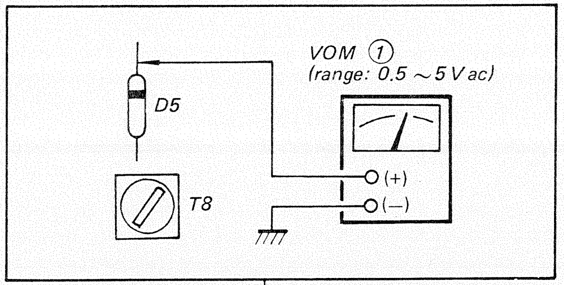
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

For MW, LW Adjustments


AM rf signal generator
lead-wire antenna
30% amplitude modulation by 400Hz signal

For SW Adjustments


AM rf signal generator
telescopic antenna lead
10pF
set
30% amplitude modulation by 400Hz signal

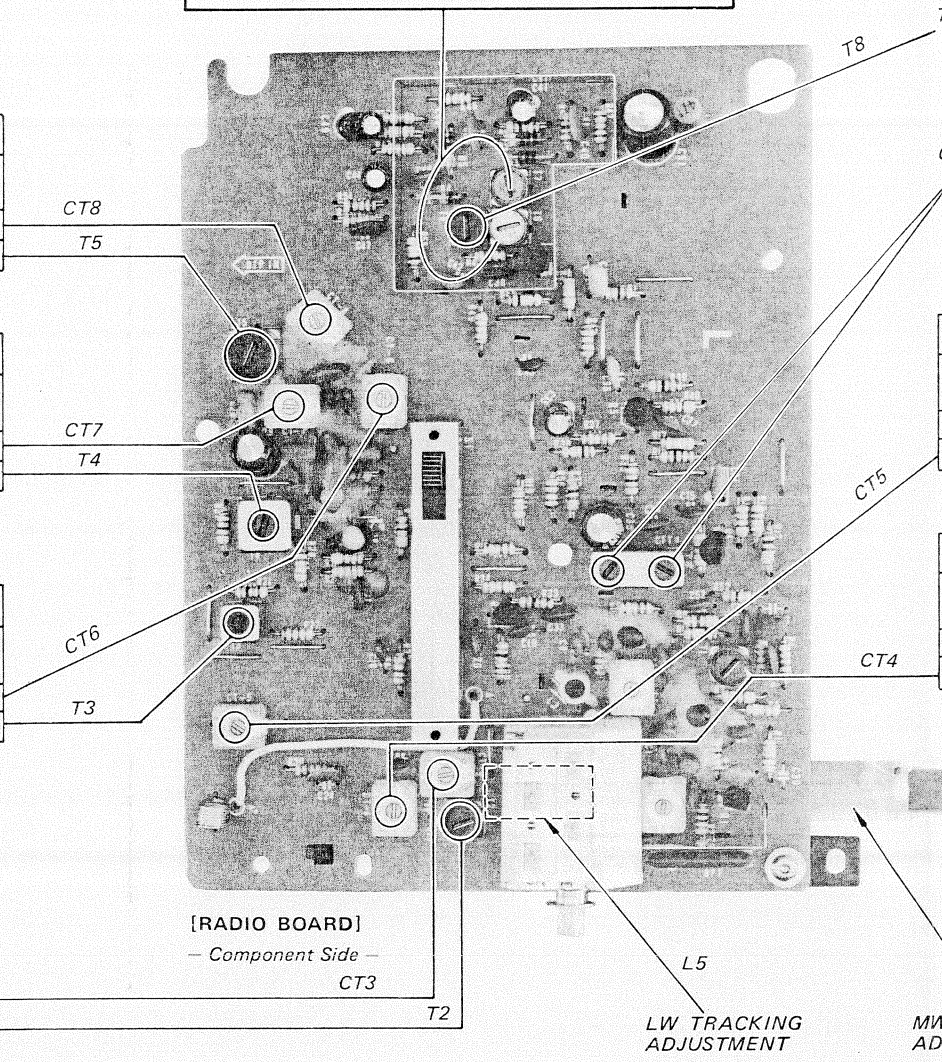

VOM ①
(range: 0.5 ~ 5 V ac)
D5
T8
(+)
(–)

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
365kHz	CT8
145kHz	T5

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
1680kHz	CT7
520kHz	T4

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
18.4MHz	CT6
5.8MHz	T3

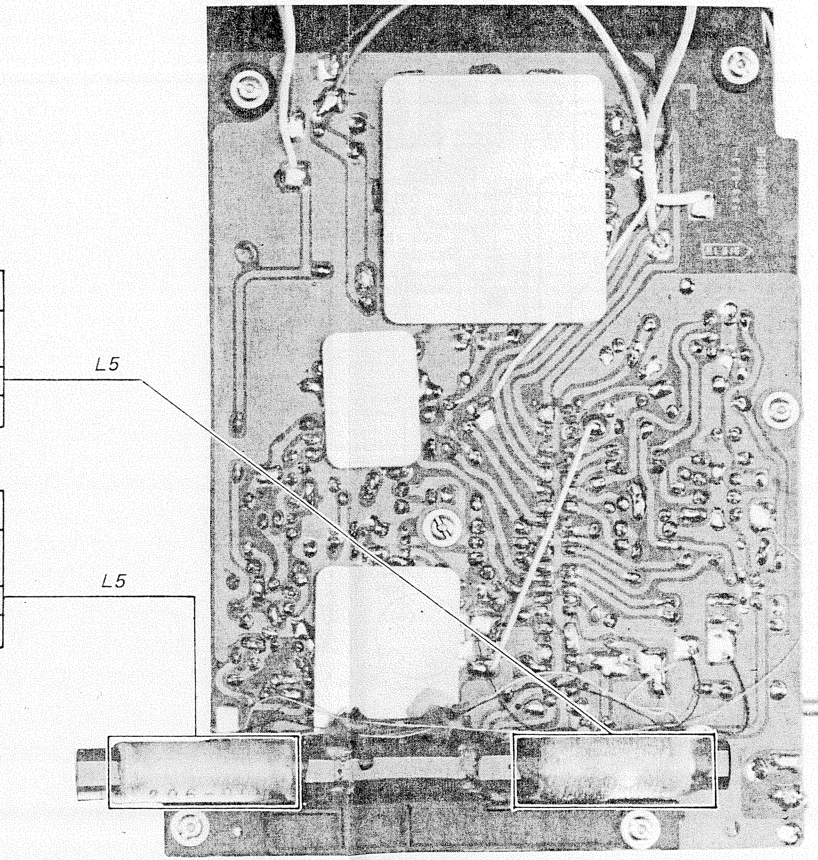
SW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
18.4MHz	CT3
5.8MHz	T2


CT8
T5
CT7
T4
CT6
T3
T8
T8 (Adjustment is not required.)
CFT1 (Adjustment is not required.)
CT5
CT4
CT3
T2
L5
LW TRACKING ADJUSTMENT
L5
MW TRACKING ADJUSTMENT

[RADIO BOARD]
— Component Side —

LW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
160kHz	L5
330kHz	CT5

MW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM ① .	
620kHz	L5
1400kHz	CT4



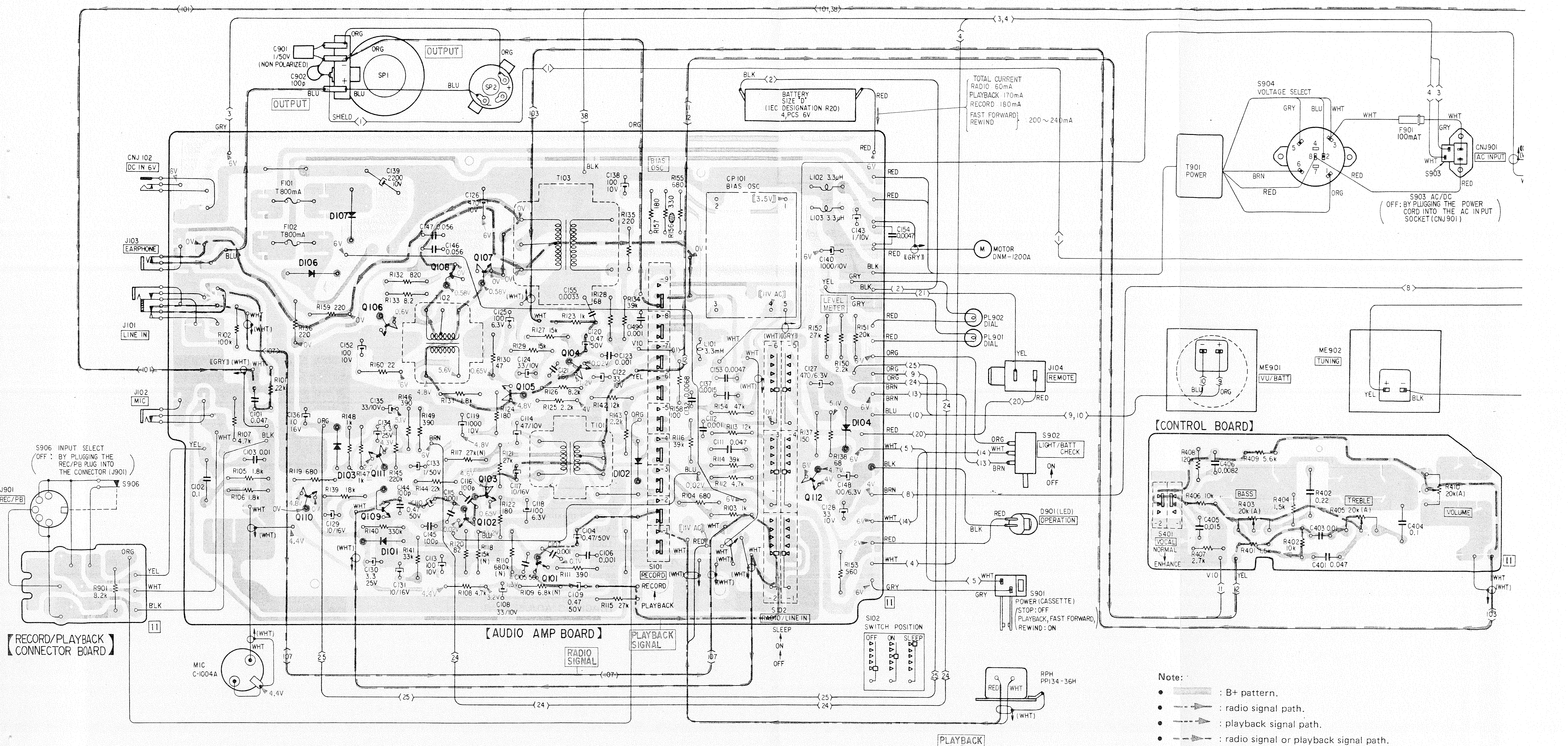
[RADIO BOARD]
— Component Side —

SECTION 4

DIAGRAMS

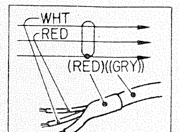
4-1. MOUNTING DIAGRAM

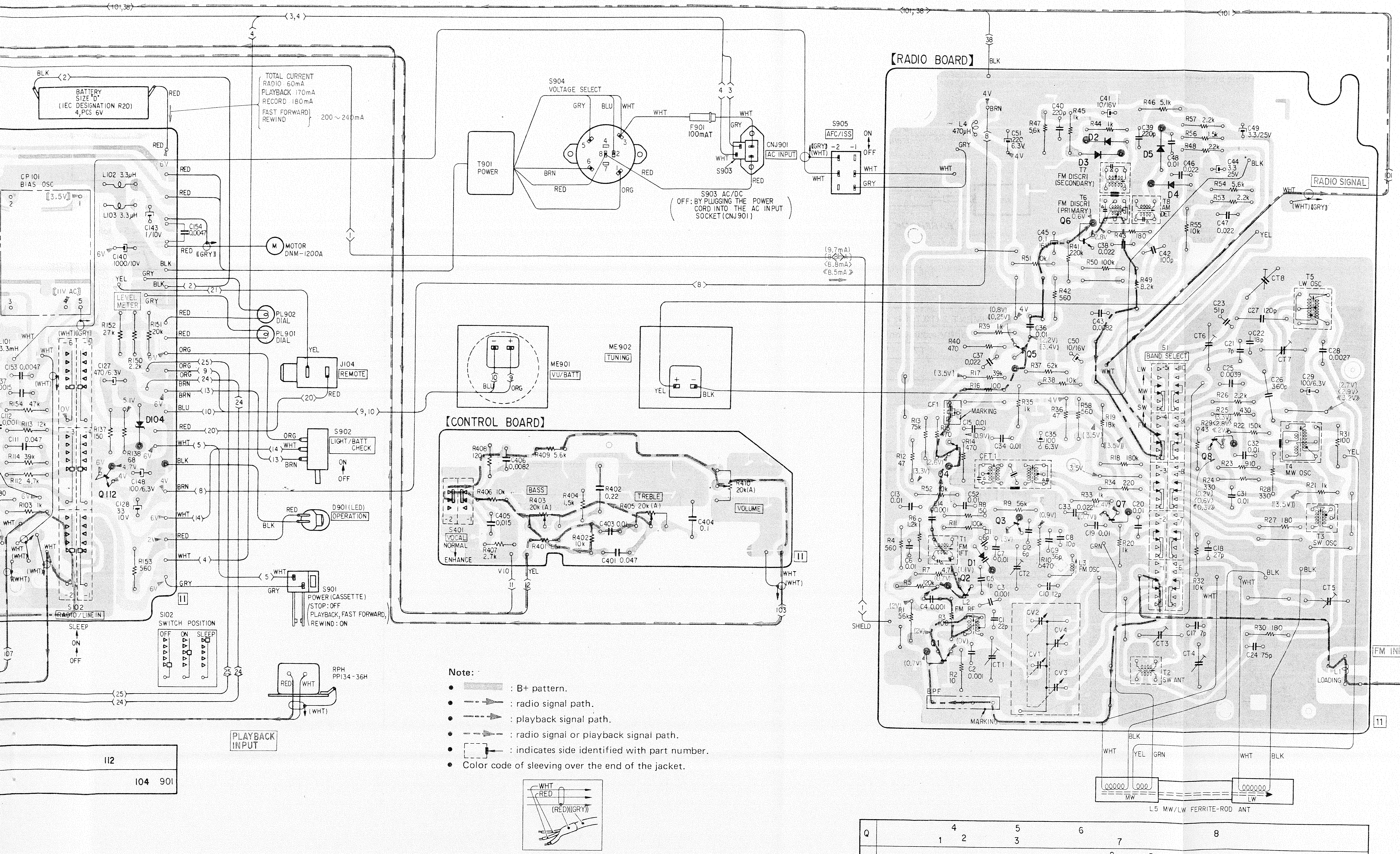
– Conductor Side –


OUTPUT
C901 1/50V (NON POLARIZED)
C902 100p
SP1
SP2
SHIELD
CNJ 102 DC IN 6V
F101 T800mA
F102 T800mA
J103 EARPHONE
J101 LINE IN
J102 MIC
S906 INPUT SELECT
OFF : BY PLUGGING THE REC/PB PLUG INTO THE CONNECTOR (J901)
J901 REC/PB
R901 8.2k
【RECORD/PLAYBACK CONNECTOR BOARD】
MIC C-1004A
T103
T102
T101
BIAS OSC
CP101 BIAS OSC
BATTERY SIZE "D" (IEC DESIGNATION R20) 4 PCS 6V
TOTAL CURRENT
RADIO 60mA
PLAYBACK 170mA
RECORD 180mA
FAST FORWARD REWIND 200～240mA
L102 3.3μH
L103 3.3μH
L101 3.3mH
MOTOR DNM-1200A
LEVEL METER
PL902 DIAL
PL901 DIAL
J104 REMOTE
S902 LIGHT/BATT CHECK
ON
OFF
D901 (LED) OPERATION
S901 POWER (CASSETTE)
/STOP: OFF
PLAYBACK, FAST FORWARD, REWIND: ON
S101 RECORD
RECORD
PLAYBACK
S102 RADIO/LINE IN
S102 SWITCH POSITION
OFF ON SLEEP
SLEEP
ON
OFF
【AUDIO AMP BOARD】
RADIO SIGNAL
PLAYBACK SIGNAL
RPH PP134-36H
PLAYBACK INPUT
S904 VOLTAGE SELECT
T901 POWER
F901 100mAT
CNJ901 AC INPUT
S903
S903 AC/DC
OFF: BY PLUGGING THE POWER CORD INTO THE AC INPUT SOCKET (CNJ901)
ME901 VU/BATT
ME902 TUNING
【CONTROL BOARD】
BASS
TREBLE
VOLUME
S401 VOCAL
NORMAL
ENHANCE

Q	110 111 109 106 108 102 107 103 105 101 104 112
D	106 103 107 101 102 104 901

Note:
- : B+ pattern.
- : radio signal path.
- : playback signal path.
- : radio signal or playback signal path.
- : indicates side identified with part number.
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)


【RADIO BOARD】
【CONTROL BOARD】
BATTERY SIZE 'D' (IEC DESIGNATION R20) 4 PCS 6V
TOTAL CURRENT
RADIO 60mA
PLAYBACK 170mA
RECORD 180mA
FAST FORWARD / REWIND 200～240mA
S904 VOLTAGE SELECT
T901 POWER
F901 100mAT
CNJ901 AC INPUT
S903 AC/DC (OFF: BY PLUGGING THE POWER CORD INTO THE AC INPUT SOCKET (CNJ901))
S905 AFC/ISS
ON
OFF
CP101 BIAS OSC
MOTOR DNM-1200A
PL902 DIAL
PL901 DIAL
J104 REMOTE
ME901 VU/BATT
ME902 TUNING
S902 LIGHT/BATT CHECK
D901 (LED) OPERATION
S901 POWER (CASSETTE) /STOP: OFF PLAYBACK, FAST FORWARD, REWIND: ON
S102 SWITCH POSITION
OFF
ON
SLEEP
S102 RADIO/LINE IN
RPH PP134-36H
PLAYBACK INPUT
S401 VOCAL
NORMAL
ENHANCE
BASS
TREBLE
VOLUME
RADIO SIGNAL
FM INPUT
ANT1 TEL ANT
L1 LOADING
S1 BAND SELECT
T5 LW OSC
T4 MW OSC
T3 SW OSC
T2 SW ANT
T6 FM DISCRI (PRIMARY)
T7 FM DISCRI (SECONDARY)
T8 AM DET
CFT1
CF1
T1 FM IFT
L3 FM OSC
L2 FM RF
BPF
MARKING
SHIELD
L5 MW/LW FERRITE-ROD ANT
MW
LW
WHT
RED
(RED)(GRY)

Note:

- ▨ : B+ pattern.
- ‒·‒▶ : radio signal path.
- ‒‒▶ : playback signal path.
- ‒ ‒▶ : radio signal or playback signal path.
- [ ] : indicates side identified with part number.
- Color code of sleeving over the end of the jacket.

Q	1	4	2	5 3	6	7	8		
D	1	3	2	5	4				

112

104 901

4-2. SCHEMATIC DIAGRAM

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note:

- All capacitors are in μF unless otherwise noted. pF = $\mu\mu$F 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- ⏚ : chassis ground.
- (N) : low-noise capacitor and resistor.
- △ : internal component.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬ : B+ bus.
- AC voltage readings indicated by in the bias oscillator circuit are taken with a VTVM.
- Readings are taken under detuned conditions with a VOM (20kΩ/V).

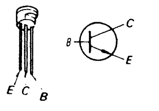
( ) : FM	≪ ≫ : LW
[ ] : SW	(( )) : SW/MW/LW
< > : MW	[[ ]] : record
no mark: FM/SW/MW/LW	

- Total current is measured with no cassette installed.
- In using an electret condenser microphone with a red mark on the side of the case, connect R106 shown by ★ in parallel with R105.
- Switch

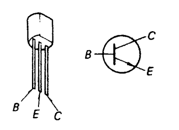
Ref. No.	Switch	Position
S1	BAND SELECT	FM
S101	RECORD	PLAYBACK
S102	RADIO/LINE IN	OFF
S401	VOCAL	NORMAL
S901	POWER (CASSETTE)	OFF
S902	LIGHT/BATT CHECK	OFF
S903	AC/DC	DC
S904	VOLTAGE SELECT	------
S905	AFC/ISS	OFF
S906	INPUT SELECT	ON

( ): Replacement Semiconductors

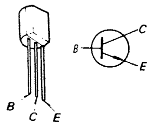
Q1: 2SC930D
Q2, 3: 2SC668D



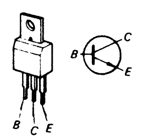
Q2, 3: (2SC1129)



Q4 ~ 8: 2SC710

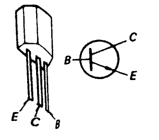


Q107, 108: 2SC1761
(2SC1760)



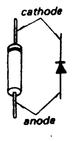
Q101, 102: 2SC631A
(2SC632A)

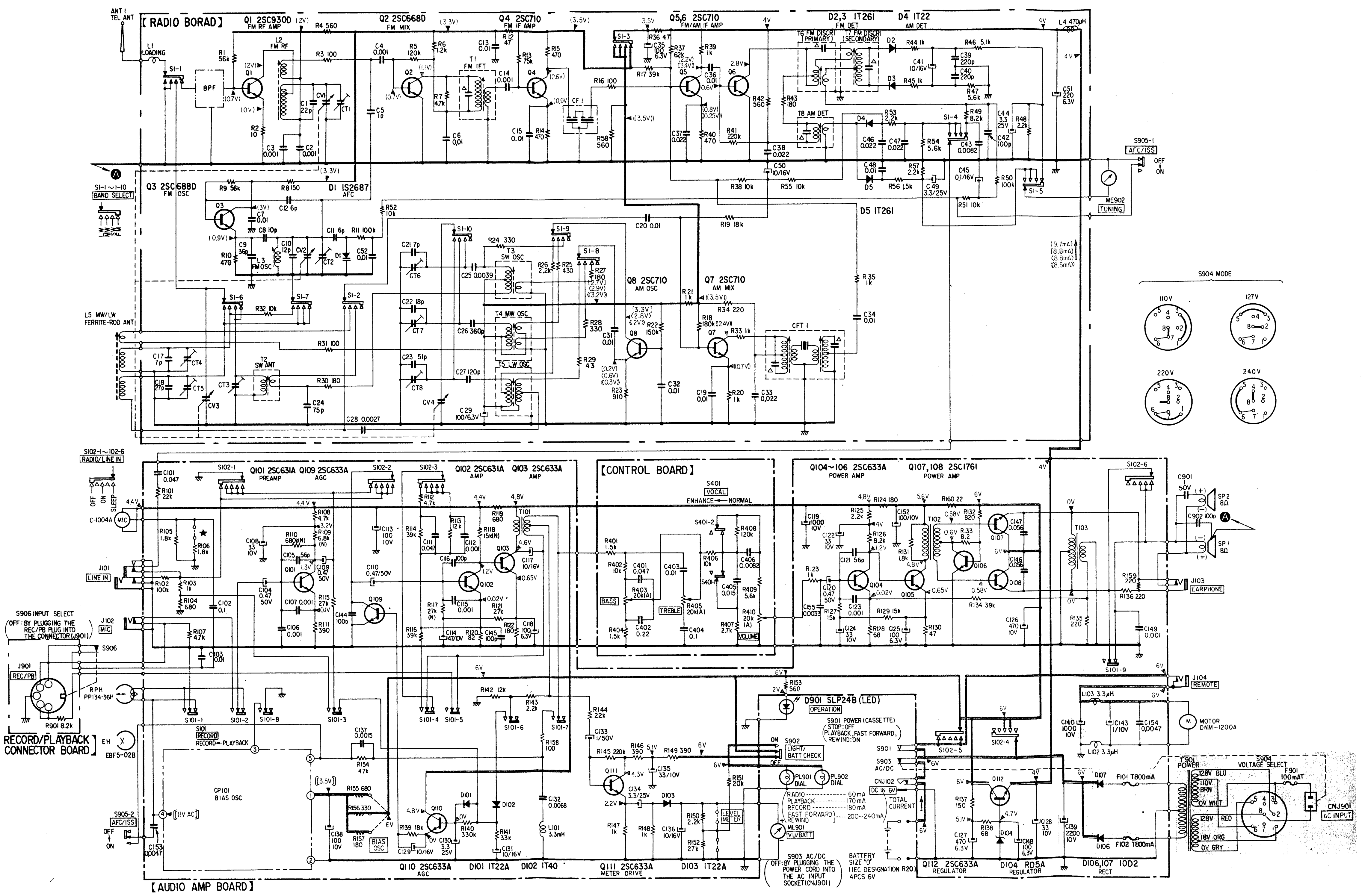
Q103 ~ 106, Q109 ~ 112 : 2SC633A (2SC634A)



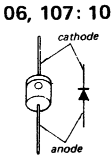
D1: 1S2687 (1S2687S)
D2, 3, 5: 1T261
D4: 1T22 (1T22A)

D101, 103: 1T22A
D102: 1T40 (1S1555)
D104: RD5A

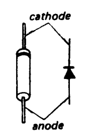

cathode
anode


ANT 1 TEL ANT
[RADIO BORAD]
Q1 2SC930D FM RF AMP
Q2 2SC668D FM MIX
Q4 2SC710 FM IF AMP
Q5,6 2SC710 FM/AM IF AMP
D2,3 1T261 FM DET
D4 1T22 AM DET
Q3 2SC688D FM OSC
D1 1S2687 AFC
D5 1T261
Q8 2SC710 AM OSC
Q7 2SC710 AM MIX
S1-1~1-10 BAND SELECT
L5 MW/LW FERRITE-ROD ANT
T2 SW ANT
T3 SW OSC
T4 MW OSC
T5 LW OSC
CF1
S905-1 AFC/ISS
ME902 TUNING
S904 MODE
110V
127V
220V
240V
S102-1~102-6 RADIO/LINE IN
[CONTROL BOARD]
S401 VOCAL
ENHANCE ← → NORMAL
BASS
TREBLE
VOLUME
Q101 2SC631A PREAMP
Q109 2SC633A AGC
Q102 2SC631A AMP
Q103 2SC633A AMP
Q104~106 2SC633A POWER AMP
Q107,108 2SC1761 POWER AMP
SP2 8Ω
SP1 8Ω
J103 EARPHONE
J104 REMOTE
J101 LINE IN
J102 MIC
C-1004A MIC
S906 INPUT SELECT
(OFF: BY PLUGGING THE REC/PB PLUG INTO THE CONNECTOR (J901))
J901 REC/PB
RPH PP134-36H
R901 8.2k
RECORD/PLAYBACK CONNECTOR BOARD
EH EBF5-02B
S101 RECORD
RECORD → PLAYBACK
GP101 BIAS OSC
S905-2 AFC/ISS
OFF ON
D901 SLP24B (LED) OPERATION
S901 POWER (CASSETTE) (STOP: OFF PLAYBACK, FAST FORWARD, REWIND: ON)
S902 LIGHT/BATT CHECK
S903 AC/DC
CNJ102 DC IN 6V
PL901 DIAL
PL902 DIAL
RADIO 60mA
PLAYBACK 170mA
RECORD 180mA
FAST FORWARD, REWIND 200~240mA
TOTAL CURRENT
ME901 VU/BATT
LEVEL METER
S903 AC/DC (OFF: BY PLUGGING THE POWER CORD INTO THE AC INPUT SOCKET (CNJ901))
BATTERY SIZE "D" (IEC DESIGNATION R20) 4PCS 6V
M MOTOR DNM-1200A
L103 3.3μH
L102 3.3μH
T901 POWER
S904 VOLTAGE SELECT
F901 100mAT
F101 T800mA
F102 T800mA
CNJ901 AC INPUT
128V BLU
110V BRN
0V WHT
128V RED
18V ORG
0V GRY
Q110 2SC633A AGC
D101 1T22A
D102 1T40
Q111 2SC633A METER DRIVE
D103 1T22A
Q112 2SC633A REGULATOR
D104 RD5A REGULATOR
D106,107 10D2 RECT
[AUDIO AMP BOARD]

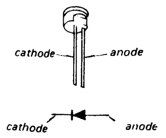
D106, 107: 10D2


cathode
anode

D106, 107: (10E2)


cathode
anode

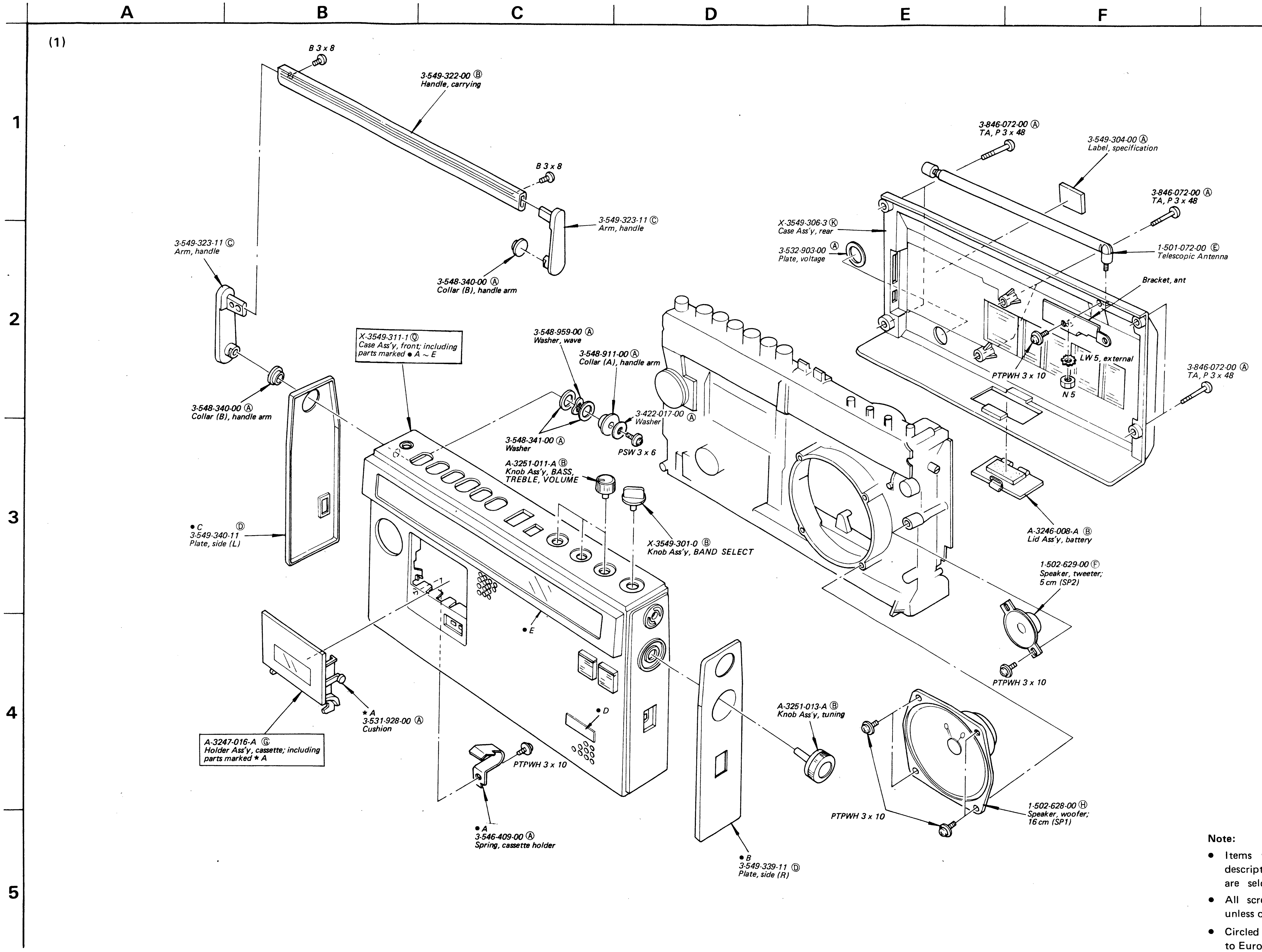
D901: SLP24B (LED)


cathode
anode
cathode
anode

SECTION 5

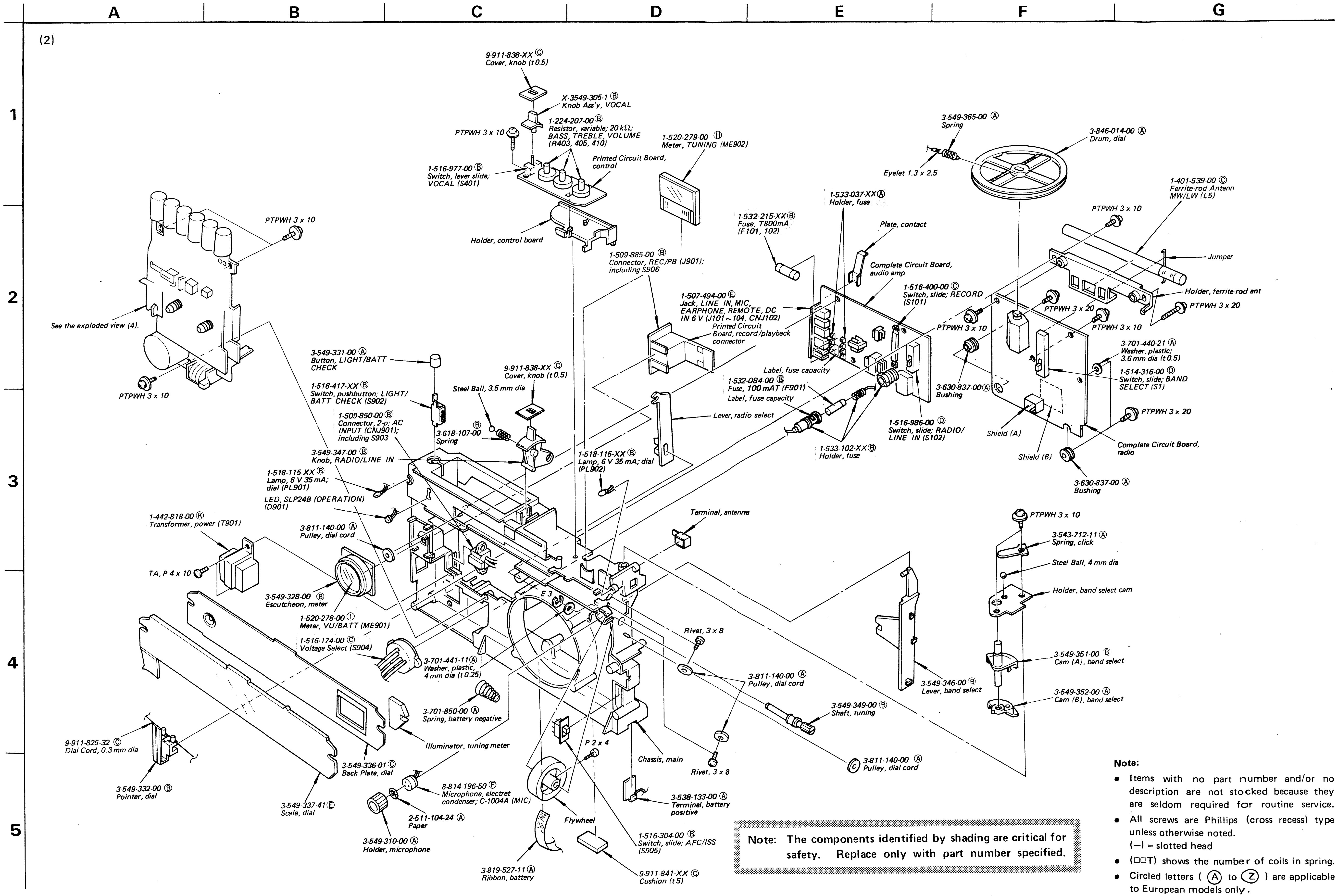
EXPLODED VIEWS

(1)


A
B
C
D
E
F
G
1
2
3
4
5
B 3 x 8
3-549-322-00 Ⓑ
Handle, carrying
B 3 x 8
3-549-323-11 Ⓒ
Arm, handle
3-549-323-11 Ⓒ
Arm, handle
3-548-340-00 Ⓐ
Collar (B), handle arm
3-548-340-00 Ⓐ
Collar (B), handle arm
X-3549-311-1 Ⓠ
Case Ass'y, front; including parts marked ● A ~ E
3-548-959-00 Ⓐ
Washer, wave
3-548-911-00 Ⓐ
Collar (A), handle arm
3-422-017-00 Ⓐ
Washer
3-548-341-00 Ⓐ
Washer
PSW 3 x 6
A-3251-011-A Ⓑ
Knob Ass'y, BASS, TREBLE, VOLUME
X-3549-301-0 Ⓑ
Knob Ass'y, BAND SELECT
● C
3-549-340-11 Ⓓ
Plate, side (L)
● E
● D
★ A
3-531-928-00 Ⓐ
Cushion
A-3247-016-A Ⓖ
Holder Ass'y, cassette; including parts marked ★ A
PTPWH 3 x 10
● A
3-546-409-00 Ⓐ
Spring, cassette holder
● B
3-549-339-11 Ⓓ
Plate, side (R)
A-3251-013-A Ⓑ
Knob Ass'y, tuning
PTPWH 3 x 10
1-502-628-00 Ⓗ
Speaker, woofer; 16 cm (SP1)
PTPWH 3 x 10
1-502-629-00 Ⓕ
Speaker, tweeter; 5 cm (SP2)
A-3246-008-A Ⓑ
Lid Ass'y, battery
3-846-072-00 Ⓐ
TA, P 3 x 48
3-549-304-00 Ⓐ
Label, specification
3-846-072-00 Ⓐ
TA, P 3 x 48
X-3549-306-3 Ⓚ
Case Ass'y, rear
3-532-903-00 Ⓐ
Plate, voltage
1-501-072-00 Ⓔ
Telescopic Antenna
Bracket, ant
LW 5, external
PTPWH 3 x 10
N 5
3-846-072-00 Ⓐ
TA, P 3 x 48

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

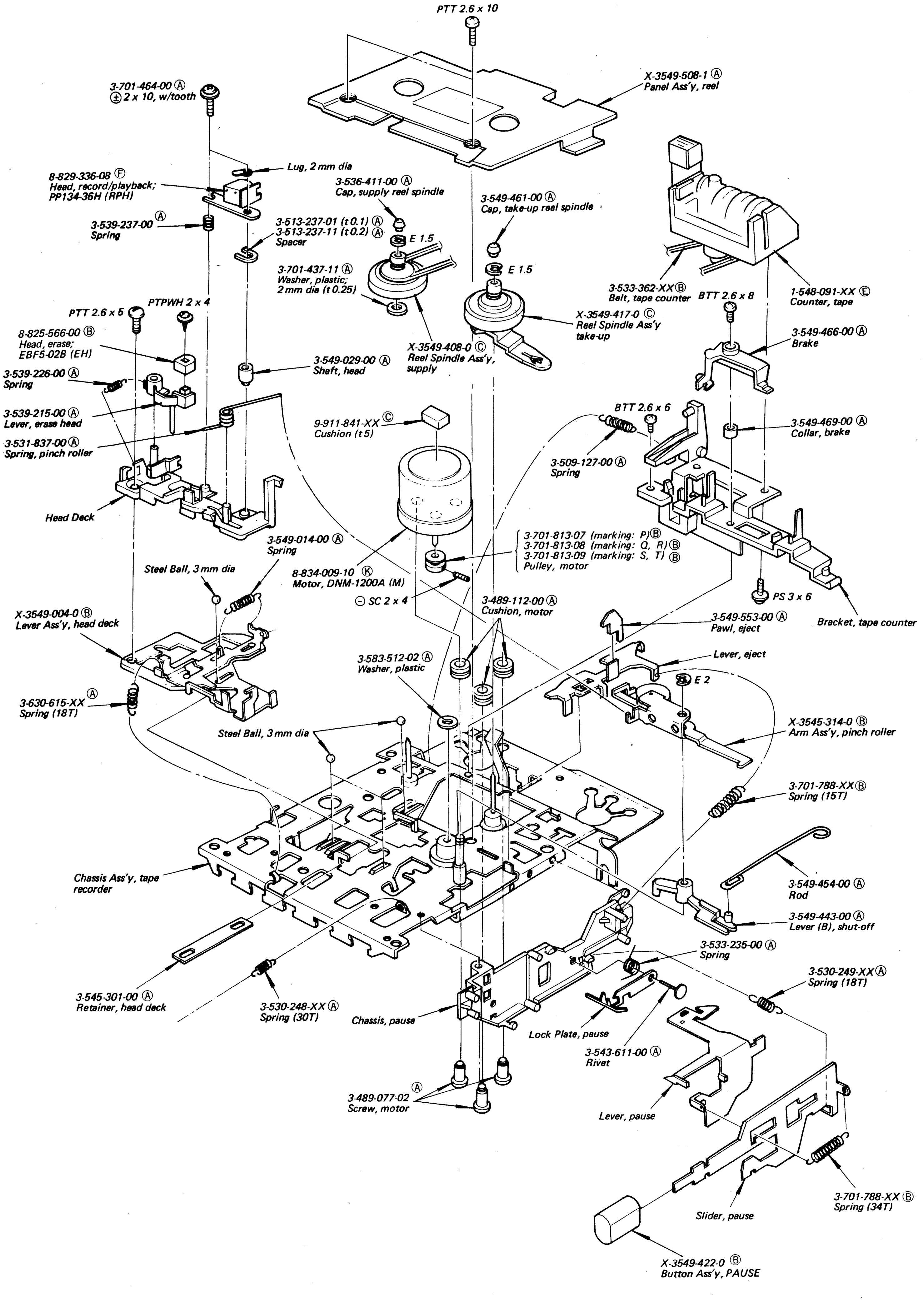

A
B
C
D
E
F
G
1
2
3
4
5
(2)
9-911-838-XX Ⓒ
Cover, knob (t 0.5)
X-3549-305-1 Ⓑ
Knob Ass'y, VOCAL
1-224-207-00 Ⓑ
Resistor, variable; 20 kΩ;
BASS, TREBLE, VOLUME
(R403, 405, 410)
PTPWH 3 x 10
1-520-279-00 Ⓗ
Meter, TUNING (ME902)
1-516-977-00 Ⓑ
Switch, lever slide;
VOCAL (S401)
Printed Circuit Board,
control
Holder, control board
PTPWH 3 x 10
See the exploded view (4).
PTPWH 3 x 10
1-509-885-00 Ⓑ
Connector, REC/PB (J901);
including S906
1-507-494-00 Ⓔ
Jack, LINE IN, MIC,
EARPHONE, REMOTE, DC
IN 6 V (J101 ~ 104, CNJ102)
Printed Circuit
Board, record/playback
connector
3-549-331-00 Ⓐ
Button, LIGHT/BATT
CHECK
9-911-838-XX Ⓒ
Cover, knob (t 0.5)
1-516-417-XX Ⓑ
Switch, pushbutton; LIGHT/
BATT CHECK (S902)
Steel Ball, 3.5 mm dia
1-509-850-00 Ⓑ
Connector, 2-p; AC
INPUT (CNJ901);
including S903
Ⓑ
3-618-107-00
Spring
Lever, radio select
3-549-347-00 Ⓑ
Knob, RADIO/LINE IN
1-518-115-XX Ⓑ
Lamp, 6 V 35 mA; dial
(PL902)
1-518-115-XX Ⓑ
Lamp, 6 V 35 mA;
dial (PL901)
LED, SLP24B (OPERATION)
(D901)
1-442-818-00 Ⓚ
Transformer, power (T901)
3-811-140-00 Ⓐ
Pulley, dial cord
Terminal, antenna
TA, P 4 x 10
3-549-328-00 Ⓑ
Escutcheon, meter
1-520-278-00 Ⓘ
Meter, VU/BATT (ME901)
1-516-174-00 Ⓒ
Voltage Select (S904)
E 3
3-701-441-11 Ⓐ
Washer, plastic,
4 mm dia (t 0.25)
3-701-850-00 Ⓐ
Spring, battery negative
Rivet, 3 x 8
3-811-140-00 Ⓐ
Pulley, dial cord
3-549-349-00 Ⓑ
Shaft, tuning
9-911-825-32 Ⓒ
Dial Cord, 0.3 mm dia
3-549-332-00 Ⓑ
Pointer, dial
3-549-336-01 Ⓒ
Back Plate, dial
Illuminator, tuning meter
P 2 x 4
Chassis, main
Rivet, 3 x 8
3-811-140-00 Ⓐ
Pulley, dial cord
3-549-337-41 Ⓔ
Scale, dial
8-814-196-50 Ⓕ
Microphone, electret
condenser; C-1004A (MIC)
2-511-104-24 Ⓐ
Paper
3-549-310-00 Ⓐ
Holder, microphone
Flywheel
3-538-133-00 Ⓐ
Terminal, battery
positive
1-516-304-00 Ⓑ
Switch, slide; AFC/ISS
(S905)
3-819-527-11 Ⓐ
Ribbon, battery
9-911-841-XX Ⓒ
Cushion (t 5)
3-549-365-00 Ⓐ
Spring
Eyelet 1.3 x 2.5
3-846-014-00 Ⓐ
Drum, dial
1-401-539-00 Ⓒ
Ferrite-rod Antenn
MW/LW (L5)
1-533-037-XX Ⓐ
Holder, fuse
1-532-215-XX Ⓑ
Fuse, T800mA
(F101, 102)
Plate, contact
PTPWH 3 x 10
Jumper
Complete Circuit Board,
audio amp
1-516-400-00 Ⓒ
Switch, slide; RECORD
(S101)
Holder, ferrite-rod ant
PTPWH 3 x 20
PTPWH 3 x 20
PTPWH 3 x 10
PTPWH 3 x 10
Label, fuse capacity
1-532-084-00 Ⓑ
Fuse, 100 mAT (F901)
Label, fuse capacity
3-630-837-00 Ⓐ
Bushing
3-701-440-21 Ⓐ
Washer, plastic;
3.6 mm dia (t 0.5)
1-514-316-00 Ⓓ
Switch, slide; BAND
SELECT (S1)
1-516-986-00 Ⓓ
Switch, slide; RADIO/
LINE IN (S102)
1-533-102-XX Ⓑ
Holder, fuse
Shield (A)
Shield (B)
PTPWH 3 x 20
Complete Circuit Board,
radio
3-630-837-00 Ⓐ
Bushing
PTPWH 3 x 10
3-543-712-11 Ⓐ
Spring, click
Steel Ball, 4 mm dia
Holder, band select cam
3-549-346-00 Ⓑ
Lever, band select
3-549-351-00 Ⓑ
Cam (A), band select
3-549-352-00 Ⓐ
Cam (B), band select

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

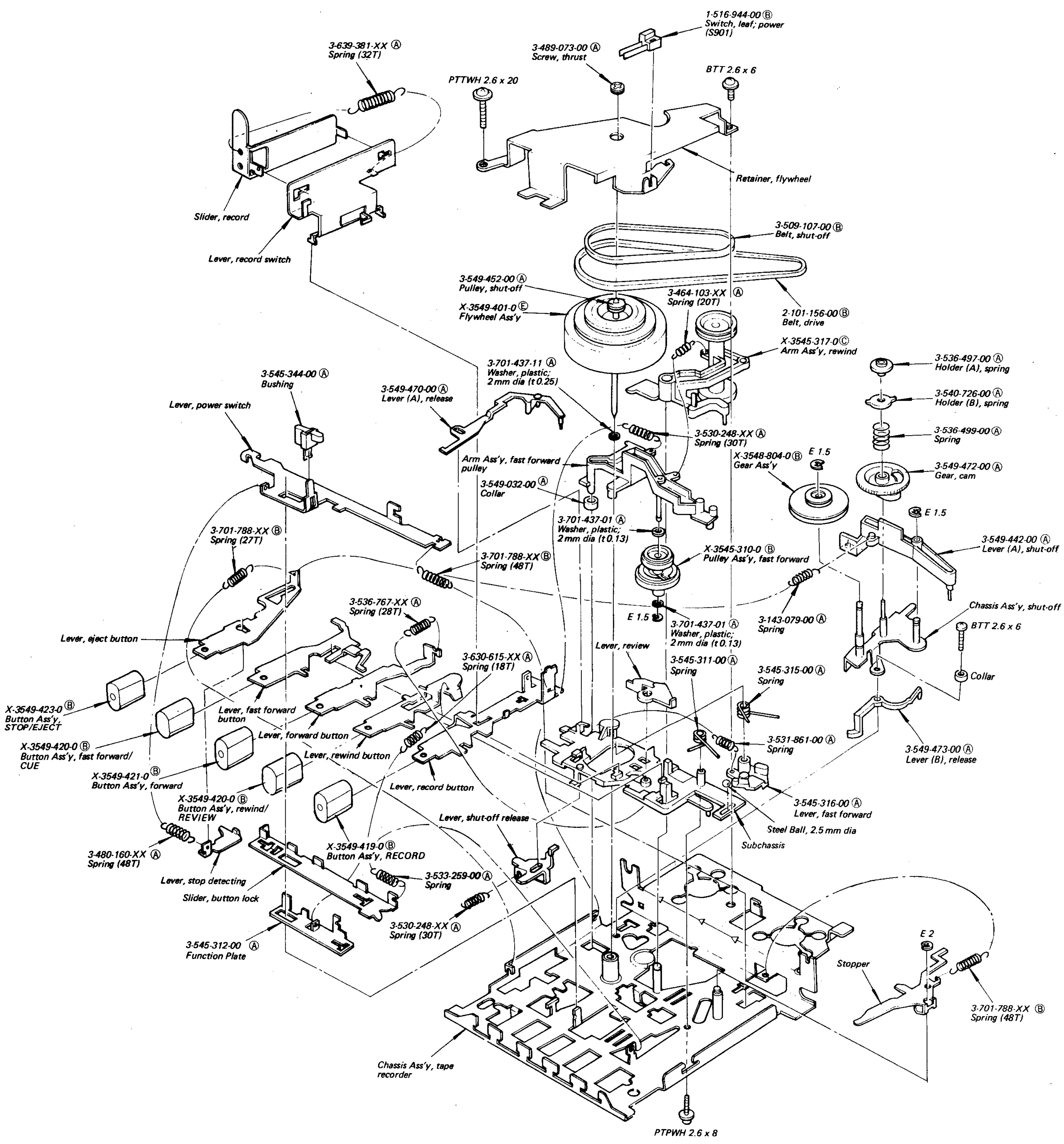
(3)


A
B
C
D
E
1
2
3
4
5
6
7
PTT 2.6 x 10
X-3549-508-1 Ⓐ
Panel Ass'y, reel
3-701-464-00 Ⓐ
⊕ 2 x 10, w/tooth
Lug, 2 mm dia
8-829-336-08 Ⓕ
Head, record/playback;
PP134-36H (RPH)
3-536-411-00 Ⓐ
Cap, supply reel spindle
3-549-461-00 Ⓐ
Cap, take-up reel spindle
3-539-237-00 Ⓐ
Spring
3-513-237-01 (t 0.1) Ⓐ
3-513-237-11 (t 0.2) Ⓐ
Spacer
E 1.5
E 1.5
3-701-437-11 Ⓐ
Washer, plastic;
2 mm dia (t 0.25)
3-533-362-XX Ⓑ
Belt, tape counter
BTT 2.6 x 8
1-548-091-XX Ⓔ
Counter, tape
X-3549-417-0 Ⓒ
Reel Spindle Ass'y
take-up
PTPWH 2 x 4
PTT 2.6 x 5
3-549-466-00 Ⓐ
Brake
8-825-566-00 Ⓑ
Head, erase;
EBF5-02B (EH)
3-549-029-00 Ⓐ
Shaft, head
X-3549-408-0 Ⓒ
Reel Spindle Ass'y,
supply
3-539-226-00 Ⓐ
Spring
BTT 2.6 x 6
3-539-215-00 Ⓐ
Lever, erase head
9-911-841-XX Ⓒ
Cushion (t 5)
3-549-469-00 Ⓐ
Collar, brake
3-531-837-00 Ⓐ
Spring, pinch roller
3-509-127-00 Ⓐ
Spring
Head Deck
3-701-813-07 (marking: P) Ⓑ
3-701-813-08 (marking: Q, R) Ⓑ
3-701-813-09 (marking: S, T) Ⓑ
Pulley, motor
3-549-014-00 Ⓐ
Spring
Steel Ball, 3 mm dia
8-834-009-10 Ⓚ
Motor, DNM-1200A (M)
⊖ SC 2 x 4
PS 3 x 6
3-489-112-00 Ⓐ
Cushion, motor
X-3549-004-0 Ⓑ
Lever Ass'y, head deck
3-549-553-00 Ⓐ
Pawl, eject
Bracket, tape counter
Lever, eject
3-583-512-02 Ⓐ
Washer, plastic
E 2
3-630-615-XX Ⓐ
Spring (18T)
X-3545-314-0 Ⓑ
Arm Ass'y, pinch roller
Steel Ball, 3 mm dia
3-701-788-XX Ⓑ
Spring (15T)
Chassis Ass'y, tape
recorder
3-549-454-00 Ⓐ
Rod
3-549-443-00 Ⓐ
Lever (B), shut-off
3-533-235-00 Ⓐ
Spring
3-530-249-XX Ⓐ
Spring (18T)
3-545-301-00 Ⓐ
Retainer, head deck
3-530-248-XX Ⓐ
Spring (30T)
Chassis, pause
Lock Plate, pause
3-543-611-00 Ⓐ
Rivet
3-489-077-02 Ⓐ
Screw, motor
Lever, pause
3-701-788-XX Ⓑ
Spring (34T)
Slider, pause
X-3549-422-0 Ⓑ
Button Ass'y, PAUSE

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

(4)


A
B
C
D
E
1
2
3
4
5
6
7
3-639-381-XX Ⓐ
Spring (32T)
Slider, record
Lever, record switch
PTTWH 2.6 x 20
3-489-073-00 Ⓐ
Screw, thrust
1-516-944-00 Ⓑ
Switch, leaf; power
(S901)
BTT 2.6 x 6
Retainer, flywheel
3-509-107-00 Ⓑ
Belt, shut-off
3-549-452-00 Ⓐ
Pulley, shut-off
X-3549-401-0 Ⓔ
Flywheel Ass'y
3-464-103-XX Ⓐ
Spring (20T)
2-101-156-00 Ⓑ
Belt, drive
X-3545-317-0 Ⓒ
Arm Ass'y, rewind
3-536-497-00 Ⓐ
Holder (A), spring
3-540-726-00 Ⓐ
Holder (B), spring
3-536-499-00 Ⓐ
Spring
3-549-472-00 Ⓐ
Gear, cam
E 1.5
3-549-442-00 Ⓐ
Lever (A), shut-off
Chassis Ass'y, shut-off
BTT 2.6 x 6
Collar
3-549-473-00 Ⓐ
Lever (B), release
3-545-344-00 Ⓐ
Bushing
Lever, power switch
3-549-470-00 Ⓐ
Lever (A), release
3-701-437-11 Ⓐ
Washer, plastic;
2 mm dia (t 0.25)
3-530-248-XX Ⓐ
Spring (30T)
X-3548-804-0 Ⓑ
Gear Ass'y
E 1.5
Arm Ass'y, fast forward
pulley
3-549-032-00 Ⓐ
Collar
3-701-437-01 Ⓐ
Washer, plastic;
2 mm dia (t 0.13)
X-3545-310-0 Ⓑ
Pulley Ass'y, fast forward
3-701-788-XX Ⓑ
Spring (27T)
3-701-788-XX Ⓑ
Spring (48T)
3-143-079-00 Ⓐ
Spring
E 1.5
3-701-437-01 Ⓐ
Washer, plastic;
2 mm dia (t 0.13)
3-536-767-XX Ⓐ
Spring (28T)
Lever, eject button
3-630-615-XX Ⓐ
Spring (18T)
Lever, review
3-545-311-00 Ⓐ
Spring
3-545-315-00 Ⓐ
Spring
X-3549-423-0 Ⓑ
Button Ass'y,
STOP/EJECT
Lever, fast forward
button
Lever, forward button
Lever, rewind button
3-531-861-00 Ⓐ
Spring
X-3549-420-0 Ⓑ
Button Ass'y, fast forward/
CUE
X-3549-421-0 Ⓑ
Button Ass'y, forward
Lever, record button
3-545-316-00 Ⓐ
Lever, fast forward
Steel Ball, 2.5 mm dia
Subchassis
X-3549-420-0 Ⓑ
Button Ass'y, rewind/
REVIEW
Lever, shut-off release
3-480-160-XX Ⓐ
Spring (48T)
X-3549-419-0 Ⓑ
Button Ass'y, RECORD
Lever, stop detecting
3-533-259-00 Ⓐ
Spring
Slider, button lock
3-530-248-XX Ⓐ
Spring (30T)
3-545-312-00 Ⓐ
Function Plate
E 2
Stopper
3-701-788-XX Ⓑ
Spring (48T)
Chassis Ass'y, tape
recorder
PTPWH 2.6 x 8

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6

ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SEMICONDUCTORS

Transistors

Ref. No.	*Part No.*	*Description*
Q1		Ⓑ 2SC930D
⇒Q2, 3		Ⓑ 2SC1129
Q4 ~ 8		Ⓑ 2SC710
⇒Q101, 102		Ⓑ 2SC632A
⇒Q103 ~ 106		Ⓑ 2SC634A
⇒Q107, 108		Ⓒ 2SC1760
⇒Q109 ~ 112		Ⓑ 2SC634A

Diodes

Ref. No.	*Part No.*	*Description*
⇒D1		Ⓑ 1S2687S
D2, 3		Ⓐ 1T261
⇒D4		Ⓐ 1T22A
D5		Ⓐ 1T261
D101		Ⓐ 1T22A
⇒D102		Ⓑ 1S1555
D103		Ⓐ 1T22A
D104		Ⓑ RD5A
⇒D106, 107		Ⓑ 10E2
D901		Ⓒ SLP24B (LED)

COILS

Ref. No.	*Part No.*	*Description*
L2	1-425-632-00	Ⓑ FM RF
L3	1-459-157-00	Ⓑ FM OSC
L4	1-407-661-XX	Ⓐ 470μH, microinductor
L5	1-401-539-00	Ⓒ MW/LW Ferrite-rod Ant
L101	1-407-200-XX	Ⓐ 3.3 mH, microinductor
L102, 103	1-407-484-11	Ⓐ 3.3μH, microinductor

TRANSFORMERS

Ref. No.	*Part No.*	*Description*
CFT1	1-403-144-00	Ⓒ AM IFT
T1	1-403-872-00	Ⓑ FM IFT
T2	1-401-538-00	Ⓑ SW Ant
T3	1-405-593-00	Ⓑ SW Osc
T4	1-405-301-00	Ⓑ MW Osc
T5	1-405-594-00	Ⓑ LW Osc
T6	1-403-952-00	Ⓑ FM Discriminator (primary)
T7	1-403-953-00	Ⓑ FM Discriminator (secondary)
T8	1-404-041-00	Ⓑ AM Detector
T101	1-423-049-XX	Ⓑ Input
T102	1-423-218-00	Ⓒ Input
T103	1-427-306-XX	Ⓑ Output
T901	1-442-818-00	Ⓚ Power

⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics.
(pF = μμF, elect = electrolytic)

Ref. No.	*Part No.*	*Description*		
C1	1-102-959-11	Ⓐ 22p		
C2 ~ 4	1-101-918-11	Ⓐ 0.001		
C5	1-102-934-11	Ⓐ 1p		
C6, 7	1-101-923-11	Ⓐ 0.01		
C8	1-102-947-11	Ⓐ 10p		
C9	1-102-964-11	Ⓐ 36p		
C10	1-102-949-11	Ⓐ 12p		
C11, 12	1-102-808-11	Ⓐ 6p		
C13	1-101-923-11	Ⓐ 0.01		
C14	1-101-918-11	Ⓐ 0.001		
C15	1-101-923-11	Ⓐ 0.01		
C17	1-102-809-11	Ⓐ 7p		
C18	1-102-961-11	Ⓐ 27p		
C19	1-161-013-11	Ⓐ 0.01	(boundary layer)	
C20	1-101-923-11	Ⓐ 0.01		
C21	1-102-809-11	Ⓐ 7p		
C22	1-102-953-11	Ⓐ 18p		
C23	1-101-882-11	Ⓐ 51p		
C24	1-101-890-11	Ⓐ 75p		
C25	1-108-799-12	Ⓐ 0.0039		mylar
C26	1-107-231-11	Ⓐ 360p		silvered mica
C27	1-107-087-11	Ⓐ 120p		silvered mica
C28	1-108-797-12	Ⓐ 0.0027		mylar
C29	1-121-413-11	Ⓐ 100	6.3 V	elect
C31	1-101-923-11	Ⓐ 0.01		
C32	1-161-013-11	Ⓐ 0.01	(boundary layer)	

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*		
C33	1-101-924-11	Ⓐ 0.022		
C34	1-101-923-11	Ⓐ 0.01		
C35	1-121-413-11	Ⓐ 100	6.3 V	elect
C36	1-101-923-11	Ⓐ 0.01		
C37, 38	1-101-924-11	Ⓐ 0.022		
C39, 40	1-102-978-11	Ⓐ 220p		
C41	1-121-651-11	Ⓐ 10	16 V	elect
C42	1-102-106-11	Ⓐ 100p		
C43	1-161-012-11	Ⓐ 0.0082	(boundary layer)	
C44	1-121-392-11	Ⓐ 3.3	25 V	elect
C45	1-127-045-11	Ⓐ 0.1	16 V	solid aluminum
C46, 47	1-161-017-11	Ⓐ 0.022	(boundary layer)	
C48	1-101-923-11	Ⓐ 0.01		
C49	1-121-392-11	Ⓐ 3.3	25 V	elect
C50	1-121-651-11	Ⓐ 10	16 V	elect
C51	1-121-419-11	Ⓐ 220	6.3 V	elect
C52	1-101-923-11	Ⓐ 0.01		
C101	1-161-021-11	Ⓐ 0.047	(boundary layer)	
C102	1-161-025-11	Ⓑ 0.1	(boundary layer)	
C103	1-161-013-11	Ⓐ 0.01	(boundary layer)	
C104	1-121-726-11	Ⓐ 0.47	50V	elect
C105	1-101-885-11	Ⓐ 56p		
C106, 107	1-161-001-11	Ⓐ 0.001	(boundary layer)	
C108	1-121-402-11	Ⓐ 33	10V	elect
C109, 110	1-121-726-11	Ⓐ 0.47	50V	elect
C111	1-108-812-12	Ⓑ 0.047		mylar
C112	1-161-001-11	Ⓐ 0.001	(boundary layer)	
C113	1-121-414-11	Ⓐ 100	10V	elect
C114	1-121-352-11	Ⓐ 47	10V	elect
C115	1-161-001-11	Ⓐ 0.001	(boundary layer)	
C116	1-102-106-11	Ⓐ 100p		
C117	1-121-651-11	Ⓐ 10	16 V	elect
C118	1-121-413-11	Ⓐ 100	6.3 V	elect
C119	1-121-943-11	Ⓑ 1000	10V	elect
C120	1-121-726-11	Ⓐ 0.47	50V	elect
C121	1-101-885-11	Ⓐ 56p		
C122	1-121-402-11	Ⓐ 33	10V	elect
C123	1-161-001-11	Ⓐ 0.001	(boundary layer)	
C124	1-121-402-11	Ⓐ 33	10V	elect
C125	1-121-413-11	Ⓐ 100	6.3 V	elect
C126	1-121-425-11	Ⓑ 470	10V	elect
C127	1-121-424-11	Ⓑ 470	6.3 V	elect
C128	1-121-402-11	Ⓐ 33	10V	elect
C129	1-121-651-11	Ⓐ 10	16 V	elect
C130	1-121-392-11	Ⓐ 3.3	25 V	elect
C131	1-121-651-11	Ⓐ 10	16 V	elect
C132	1-108-575-12	Ⓑ 0.0068		mylar
C133	1-121-391-11	Ⓐ 1	50V	elect
C134	1-121-392-11	Ⓐ 3.3	25 V	elect
C135	1-121-402-11	Ⓐ 33	10V	elect
C136	1-121-651-11	Ⓐ 10	16 V	elect
C137	1-108-794-12	Ⓐ 0.0015		mylar
C138	1-121-414-11	Ⓐ 100	10V	elect
C139	1-123-074-11	Ⓑ 2200	10V	elect
C140	1-121-943-11	Ⓑ 1000	10V	elect
C143	1-127-049-11	Ⓑ 1	10V	solid aluminum
C144, 145	1-102-106-11	Ⓐ 100p		
C146, 147	1-161-022-11	Ⓐ 0.056	(boundary layer)	
C148	1-121-413-11	Ⓐ 100	6.3 V	elect
C149	1-161-001-11	Ⓐ 0.001	(boundary layer)	
C152	1-121-414-11	Ⓐ 100	10V	elect
C153	1-108-622-12	Ⓐ 0.0047		mylar
C154	1-101-922-11	Ⓐ 0.0047		
C155	1-102-123-11	Ⓐ 0.0033		
C401	1-108-845-12	Ⓐ 0.047		mylar
C402	1-108-853-12	Ⓑ 0.22		mylar
C403	1-108-837-12	Ⓐ 0.01		mylar
C404	1-108-849-12	Ⓑ 0.1		mylar
C405	1-108-839-12	Ⓐ 0.015		mylar
C406	1-108-836-12	Ⓐ 0.0082		mylar
C901	1-123-228-11	Ⓑ 1	50V	elect
C902	1-102-106-11	Ⓐ 100p		
CT1 ~ 4	1-141-147-XX	Ⓐ Trimmer		
CT5	1-141-180-00	Ⓑ Trimmer		
CT6, 7	1-141-147-XX	Ⓐ Trimmer		
CT8	1-141-180-00	Ⓑ Trimmer		

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*
CV1 ~ 4	1-151-196-00	Ⓒ Tuning

RESISTORS

Common ¼W carbon resistors are omitted. Check schematic diagram for values.

Ref. No.	*Part No.*	*Description*
R403, 405 R410	1-224-207-00	Ⓑ 20kΩ, variable; BASS, TREBLE, VOLUME

SWITCHES

Ref. No.	*Part No.*	*Description*
S1	1-514-316-00	Ⓓ Slide, BAND SELECT
S101	1-516-400-00	Ⓒ Slide, RECORD
S102	1-516-986-00	Ⓓ Slide, RADIO/LINE IN
S401	1-516-977-00	Ⓑ Lever Slide, VOCAL
S901	1-516-944-00	Ⓑ Leaf, power
S902	1-516-417-XX	Ⓑ Pushbutton, LIGHT/BATT CHECK
S903	————	Included in CNJ901
S904	1-516-174-00	Ⓒ Voltage Select
S905	1-516-304-00	Ⓑ Slide, AFC/ISS
S906	————	Included in J901

JACKS

Ref. No.	*Part No.*	*Description*
CNJ901	1-509-850-00	Ⓑ Connector, 2-p; AC INPUT; including S903
J101~104 CNJ102	1-507-494-00	Ⓔ MIC, REMOTE, LINE IN, EARPHONE, DC IN 6V
J901	1-509-885-00	Ⓑ Connector, REC/PB; including S906

MISCELLANEOUS

Ref. No.	*Part No.*	*Description*
ANT1	1-501-072-00	Ⓔ Telescopic Antenna
BPF	1-231-286-00	Ⓑ Filter, band-pass
CF1	1-527-184-XX	Ⓑ Filter, ceramic; 10.7MHz
CP101	1-464-007-00	Ⓔ Unit, bias osc
EH	8-825-566-00	Ⓑ Head, erase; EBF5-02B
F101, 102	1-532-215-00	Ⓑ Fuse, T800mA
F901	1-532-084-00	Ⓑ Fuse, 100mAT
M	8-834-009-10	Ⓚ Motor, DNM-1200A
ME901	1-520-278-00	Ⓘ Meter, VU/BATT
ME902	1-520-279-00	Ⓗ Meter, TUNING
MIC	8-814-196-50	Ⓕ Microphone, electret condenser; C-1004A
PL901, 902	1-518-115-XX	Ⓑ Lamp, 6V 35mA; dial
RPH	8-829-336-08	Ⓕ Head, record/playback; PP134-36H
SP1	1-502-628-00	Ⓗ Speaker, woofer (16cm)
SP2	1-502-629-00	Ⓕ Speaker, tweeter (5cm)
	1-533-037-XX	Ⓐ Holder, fuse
	1-533-102-XX	Ⓑ Holder, fuse

ACCESSORIES & PACKING MATERIALS

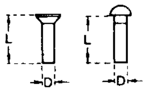
Part No.	*Description*
X-3701-018-2	Ⓐ Tips Ass'y, head cleaning
1-504-059-11	Ⓒ Earphone, ME-20H
1-506-309-00	Ⓐ Plug, shorting; SP-100
1-534-840-XX	Ⓔ Cord, power; DK-38
3-548-413-00	Ⓑ Bag, protection; set
3-549-363-00	Ⓑ Cushion, right
3-549-364-00	Ⓑ Cushion, left
3-549-390-00	Ⓔ Carton
3-770-203-11	Ⓒ Manual, instruction
3-793-455-00	Ⓐ Tag, caution
3-793-828-11	Ⓐ Card, caution; cassette
8-893-506-00	Ⓕ Tape, demonstration; CD-803

Note: The components identified by shading are critical for safety. Replace only with part number specified.

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

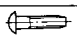
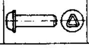
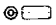
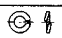
L: Length in mm
D: Diameter in mm
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3
Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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CF-470L

FM/SW/MW/LW
CASSETTE-CORDER

SUPPLEMENT

UK Model
AEP Model

No. 1
August, 1977

This supplement updates the service manual to include production changes.
File this supplement with the service manual.

ADDITIONAL PARTS

Part No.	*Description*		*Page*
A-3247-016-A	Holder Ass'y, cassette (black)	(UK Model)	19
A-3247-018-A	Holder Ass'y, cassette (silver)	(AEP Model)	19
X-3549-311-3	Case Ass'y, front (silver)	(AEP Model)	19
X-3549-312-3	Case Ass'y, front (black)	(UK Model)	19
3-549-336-11	Back Plate, dial (silver)	(UK, AEP Model)	21
3-549-339-11	Plate, side (R) (black)	(UK Model)	20
3-549-339-21	Plate, side (R) (silver)	(AEP Model)	20
3-549-340-21	Plate, side (L) (black)	(UK Model)	19
3-549-340-31	Plate, side (L) (silver)	(AEP Model)	20

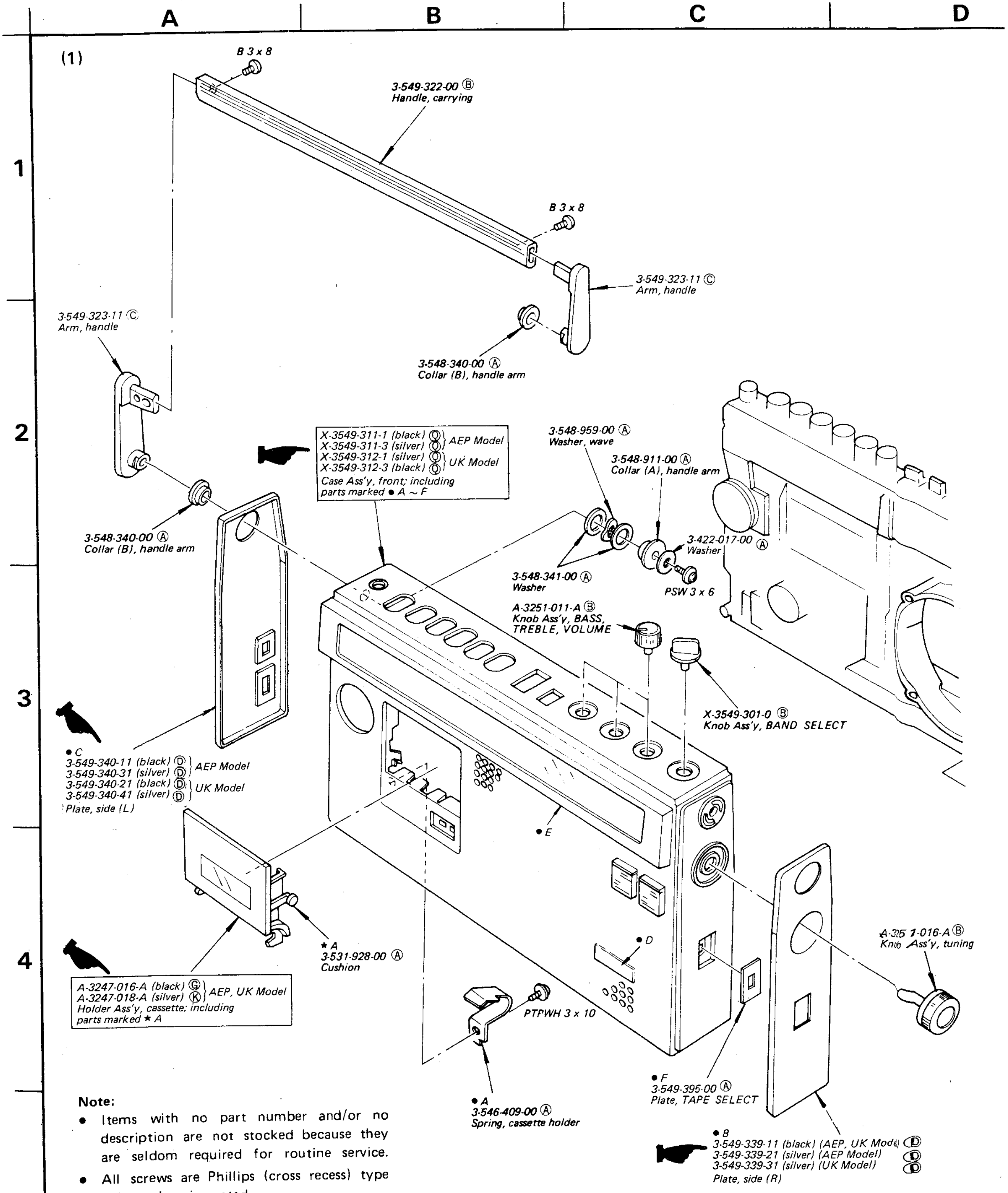
SONY®
SERVICE MANUAL

☛ : ADDITIONAL PARTS PORTION

page 19 of the Service Manual.

EXPLODED VIEWS

page 20 of the Service Manual.


A
B
C
D
1
2
3
4
5
(1)
B 3 x 8
3-549-322-00 Ⓑ
Handle, carrying
B 3 x 8
3-549-323-11 Ⓒ
Arm, handle
3-549-323-11 Ⓒ
Arm, handle
3-548-340-00 Ⓐ
Collar (B), handle arm
X-3549-311-1 (black) Ⓠ } AEP Model
X-3549-311-3 (silver) Ⓠ
X-3549-312-1 (silver) Ⓠ } UK Model
X-3549-312-3 (black) Ⓠ
Case Ass'y, front; including parts marked ● A ~ F
3-548-959-00 Ⓐ
Washer, wave
3-548-911-00 Ⓐ
Collar (A), handle arm
3-548-340-00 Ⓐ
Collar (B), handle arm
3-422-017-00 Ⓐ
Washer
3-548-341-00 Ⓐ
Washer
PSW 3 x 6
A-3251-011-A Ⓑ
Knob Ass'y, BASS, TREBLE, VOLUME
X-3549-301-0 Ⓑ
Knob Ass'y, BAND SELECT
● C
3-549-340-11 (black) Ⓓ } AEP Model
3-549-340-31 (silver) Ⓓ
3-549-340-21 (black) Ⓓ } UK Model
3-549-340-41 (silver) Ⓓ
Plate, side (L)
● E
★ A
3-531-928-00 Ⓐ
Cushion
● D
A-3251-016-A Ⓑ
Knob Ass'y, tuning
A-3247-016-A (black) Ⓖ } AEP, UK Model
A-3247-018-A (silver) Ⓚ
Holder Ass'y, cassette; including parts marked ★ A
PTPWH 3 x 10
● A
3-546-409-00 Ⓐ
Spring, cassette holder
● F
3-549-395-00 Ⓐ
Plate, TAPE SELECT
● B
3-549-339-11 (black) (AEP, UK Model) Ⓓ
3-549-339-21 (silver) (AEP Model) Ⓓ
3-549-339-31 (silver) (UK Model) Ⓓ
Plate, side (R)

Note:

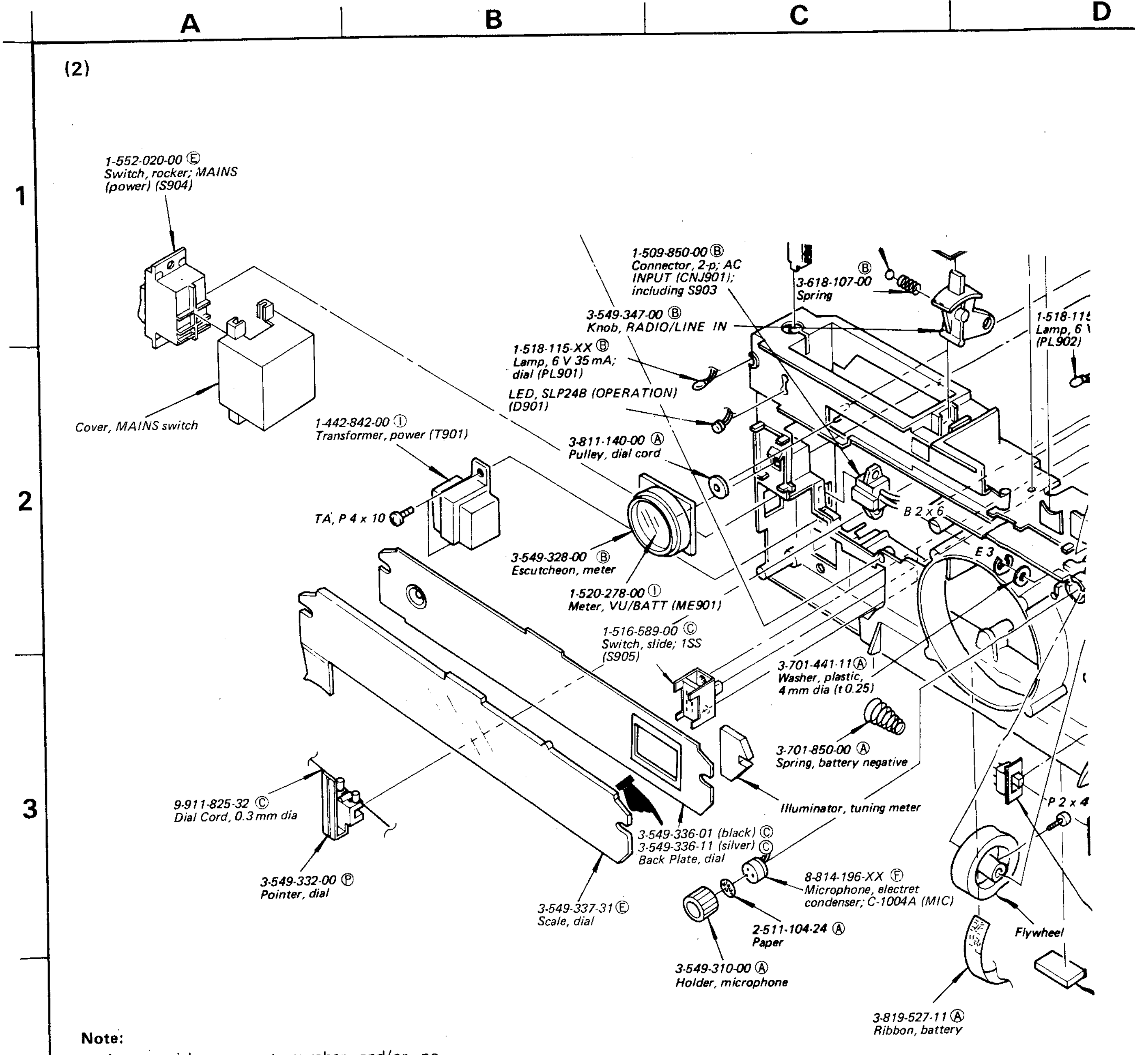
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

: ADDITIONAL PARTS PORTION

page 21 of the Service Manual.

(2)


A
B
C
D
1
2
3
4
5
1-552-020-00 Ⓔ
Switch, rocker; MAINS (power) (S904)
Cover, MAINS switch
1-442-842-00 Ⓘ
Transformer, power (T901)
TA, P 4 x 10
1-509-850-00 Ⓑ
Connector, 2-p; AC INPUT (CNJ901); including S903
3-549-347-00 Ⓑ
Knob, RADIO/LINE IN
1-518-115-XX Ⓑ
Lamp, 6 V 35 mA; dial (PL901)
LED, SLP24B (OPERATION) (D901)
3-618-107-00 Ⓑ
Spring
1-518-11
Lamp, 6
(PL902)
3-811-140-00 Ⓐ
Pulley, dial cord
3-549-328-00 Ⓑ
Escutcheon, meter
1-520-278-00 Ⓘ
Meter, VU/BATT (ME901)
B 2 x 6
E 3
1-516-589-00 Ⓒ
Switch, slide; 1SS (S905)
3-701-441-11 Ⓐ
Washer, plastic, 4 mm dia (t 0.25)
3-701-850-00 Ⓐ
Spring, battery negative
Illuminator, tuning meter
P 2 x 4
9-911-825-32 Ⓒ
Dial Cord, 0.3 mm dia
3-549-332-00 Ⓟ
Pointer, dial
3-549-336-01 (black) Ⓒ
3-549-336-11 (silver) Ⓒ
Back Plate, dial
3-549-337-31 Ⓔ
Scale, dial
8-814-196-XX Ⓕ
Microphone, electret condenser; C-1004A (MIC)
2-511-104-24 Ⓐ
Paper
3-549-310-00 Ⓐ
Holder, microphone
Flywheel
3-819-527-11 Ⓐ
Ribbon, battery

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

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